STIC Search Report
EIC 2600

STIC Database Tracking Number: 169955

TO: Scott Beliveau **Location: KNX 06 A01** **Art Unit : 2614** **Wednesday, November 02, 2005** **Case Serial Number: 10/814029**	**From: Paul Obiniyi** **Location: EIC 2600** **KNX 08 B55** **Phone: 305-1836** **paul.obiniyi@uspto.gov**

Search Notes

Dear Examiner Beliveau,

Attached please find the results of your search. Please feel free to contact me if you have additional questions or would like a re-focus search. Thank you and have a great day.

Paul

123

RUSH SPE SIGNATURE _____ Access DB# 169939

SEARCH REQUEST FORM

Scientific and Technical Information Center

EIC 2600

Requester's Full Name Scott Blixseth Examiner # 79346 Date 10/27/05

Art Unit 2614 Phone Number 2 7343 Serial Number 10 814 029

Office Location KAR 6A01 Format preferred (circle) PAPER EMAIL BOTH

If more than one search is submitted, please prioritize searches in order of need.

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Let us know what you already have and so do not need. Include the keywords, synonyms and meaning of acronyms. Define all terms that may have a specific meaning. Please attach a copy of the background, abstract, claims and other pertinent information.

Please state how the terms or keyword strings should relate to one another.

Title of the Invention BROADBAND Multi-interface Media Mode

Inventor(s)

CRAVEN, TED

BUGAJSKI, MARK

Earliest Priority date to be used 3/31/03

Looking for method of encapsulating MPEG within a DOCSIS formated message

The system Receives the DOCSIS packet, strips control from the packet, uses a MAC to forward the encoded MPEG data to a Decoder which Decodes and Displays the signal

See CLM 20

****

STAFF USE ONLY

Searcher Paul Obimyi

Phone 27734

Location KAIX08 B55

Date picked up 11/01/05

Date completed 11/02/05

Search Prep/review 45

Online Time 180

TYPE of Search

Text ✓

Litigation ____

Other ____

Databases Searched ✓

Dialog ____

STN ____

QuestelOrbit ____

LEXIS/NEXIS ____

Courtlink

Other www.ResearchIndex

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? show files; ds; save temp; logoff hold
File 348:EUROPEAN PATENTS 1978-2005/Oct W04
         (c) 2005 European Patent Office
File 349:PCT FULLTEXT 1979-2005/UB=20051027,UT=20051020
         (c) 2005 WIPO/Univentio

Set     Items   Description
S1       2180   (ENCAPSULAT? OR EN()CAPSULAT? OR CAPSULAT? OR COVER? OR CA-
            S? OR EMBED? OR ENCLOS??? OR ENCAS? OR SEAL?)(7N)(MPEG OR MOV-
            ING()PICTURE? ?()DISPLAY()GROUP? ?)
S2        791   DOCSIS OR DATA()OVER()CABLE()SERVICE()INTERFAC? ?()SPECIFI-
            CATION? ?
S3      10260   FORMAT?(3N)MESSAGE? ?
S4      31489   (STRIP? OR REMOV? OR UNCOVER? OR  TAK?()OFF OR WITHDRAW OR
            EXTRACT?)(7N)CONTENT?
S5        246   S4(7N)PACKET? ?
S6      19912   MAC OR (MEDIUM OR MEDIA)()ACESS()CONTROL
S7       5376   ENCOD?(5N)(MPEG OR MOVING()PICTURE? ?()DISPLAY()GROUP? ?)
S8     106488   DECOD?
S9     183291   (DISPLAY? OR SHOW? OR VIEW?)(5N)(SIGNAL OR OUTPUT)
S10         1   (MPEG OR MOVING()PICTURE? ?()DISPLAY()GROUP? ?)(3W)(ENCAPS-
            ULAT? OR EN()CAPSULAT? OR CAPSULAT? OR COVER? OR CAS? OR EMBE-
            D? OR ENCLOS??? OR ENCAS? OR SEAL?)(3W)(DOCSIS OR DATA()OVER(-
            )CABLE()SERVICE()INTERFAC? ?()SPECIFICATION? ?)
S11        36   AU=(CRAVEN, J? OR CRAVEN J? OR BUGAJSKI, M? OR BUGAJSKI M?)
S12     66007   IC=H04N?
S13         1   S11 AND S12
S14         9   S1(3N)S2
S15         8   S14 NOT (S13 OR S10)
S16         0   S3(S)S5
S17        58   S3(S)S4
S18         5   S17 AND S12
S19        15   S6(S)S7
S20         7   S19(S)S8
S21     13613   S8(S)S9
S22        42   S21(S)S1
S23        34   S22 AND S12
S24         4   S23(S)S4
```

13/3,K/1 (Item 1 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT

01168770 **Image available**
BROADBAND MULTI-INTERFACE MEDIA MODULE
MODULE MULTIMEDIA A INTERFACES MULTIPLES A LARGE BANDE
Patent Applicant/Assignee:
ARRIS INTERNATIONAL INC, 3871 Lakefield Drive, Suwanee, GA 30024, US, US (Residence), US (Nationality), (For all designated states except: US)
Inventor(s):
CRAVEN Jeff , 2765 Portabella Lane, Cumming, GA 30041, **,
BUGAJSKI Mark , 4361 Riverbottom Drive, Norcross, GA 30092
Legal Representative:
DOUGHTY John (agent), Arris International, Inc., 3871 Lakefield Drive, Suwanee, GA 30024, US,
Patent and Priority Information (Country, Number, Date):
Patent: WO 200491104 A2-A3 20041021 (WO 0491104)
Application: WO 2004US10116 20040331 (PCT/WO US04010116)
Priority Application: US 2003459103 20030331
Designated States:
(All protection types applied unless otherwise stated - for applications 2004+)
AE AG AL AM AT AU AZ BA BB BG BR BW BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE EG ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NA NI NO NZ OM PG PH PL PT RO RU SC SD SE SG SK SL SY TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW
(EP) AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LU MC NL PL PT RO SE SI SK TR
(OA) BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG
(AP) BW GH GM KE LS MW MZ SD SL SZ TZ UG ZM ZW
(EA) AM AZ BY KG KZ MD RU TJ TM
Publication Language: English
Filing Language: English
Fulltext Word Count: 3403

Inventor(s):
CRAVEN Jeff ...

... **BUGAJSKI Mark**
Main International Patent Class: **H04N-007/20**
International Patent Class: **H04N-007/173**
?

10/3,K/1 (Item 1 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT

00978112 **Image available**
SYSTEM AND METHOD FOR PROCESSING BANDWIDTH ALLOCATION MESSAGES
SYSTEME ET PROCEDE PERMETTANT DE TRAITER DES MESSAGES D'ATTRIBUTION DE LARGEUR DE BANDE

Patent Applicant/Assignee:
INTEL CORPORATION, 2200 Mission College Boulevard, Santa Clara, CA 95052, US, US (Residence), US (Nationality)
Inventor(s):
LOUKIANOV Dmitrii, 641 North Maple Street, Chandler, AZ 85226, US,
CHAPPELL Christopher, 650 North Maple Street, Chandler, AZ 85226, US,
HOFFMAN Jeffrey, 4821 West Flint Street, Chandler, AZ 85226, US,
Legal Representative:
MALLIE Michael J (agent), Blakely Sokoloff Taylor & Zafman, 12400 Wilshire Boulevard, 7th Floor, Los Angeles, CA 90025, US,
Patent and Priority Information (Country, Number, Date):
Patent: WO 200307547 A2-A3 20030123 (WO 0307547)
Application: WO 2002US21021 20020703 (PCT/WO US02021021)
Priority Application: US 2001903334 20010710
Designated States:
(Protection type is "patent" unless otherwise stated - for applications prior to 2004)
AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT RO RU SD SE SG SI SK SL TJ TM TN TR TT TZ UA UG UZ VN YU ZA ZM ZW
(EP) AT BE BG CH CY CZ DE DK EE ES FI FR GB GR IE IT LU MC NL PT SE SK TR
(OA) BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG
(AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZM ZW
(EA) AM AZ BY KG KZ MD RU TJ TM
Publication Language: English
Filing Language: English
Fulltext Word Count: 6891

Fulltext Availability:
Detailed Description

Detailed Description
... frame
comprises a header 212 and payload 214. The payload 214 of one or more **MPEG** data
frames may **encapsulate** a downstream **DOCSIS** MAC frame 204. A downstream
DOCSIS MAC frame may have a payload comprising a MAC...
?

15/3,K/1 (Item 1 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT

01161880 **Image available**
THIN DOCSIS IN-BAND MANAGEMENT FOR INTERACTIVE HFC SERVICE DELIVERY
GESTION MINCE EN-BANDE DE SERVICES HFC INTERACTIFS
Patent Applicant/Assignee:
TERAYON COMMUNICATION SYSTEMS INC, 4988 Great America Parkway, Santa Clara, CA 95054, US, US (Residence), US (Nationality)
Inventor(s):
RAKIB Selim Shlomo, 10271 West Acres, Cupertino, CA 95014, US,
Legal Representative:
FISH Ronald Craig (agent), P.O. Box 2258, Morgan Hill, CA 95038, US,
Patent and Priority Information (Country, Number, Date):
Patent: WO 200484445 A2 20040930 (WO 0484445)
Application: WO 2004US5886 20040226 (PCT/WO US04005886)
Priority Application: US 2003389728 20030313
Designated States:
(All protection types applied unless otherwise stated - for applications 2004+)
AE AG AL AM AT AU AZ BA BB BG BR BW BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE EG ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NA NI NO NZ OM PG PH PL PT RO RU SC SD SE SG SK SL SY TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW
(EP) AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LU MC NL PT RO SE SI SK TR
(OA) BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG
(AP) BW GH GM KE LS MW MZ SD SL SZ TZ UG ZM ZW
(EA) AM AZ BY KG KZ MD RU TJ TM
Publication Language: English
Filing Language: English
Fulltext Word Count: 29844

Fulltext Availability:
Detailed Description
Claims

Detailed Description
... the same RIF channel the encrypted service data is transmitted upon. This is done by **encapsulating** the M&C data in **MPEG** packets having the **DOCSIS** PID and putting these packets in an MPEG-2 transport stream used to deliver the...then encapsulated in MAC frames addressed to particular STBs or multicast. The MAC frames are **encapsulated** into **MPEG** packts having the **DOCSIS** PID in transmission convergence layer 21, and sent to a 1 5 transport multiplexer 24...
...the device and process which requested the other service data, These MAC frames are then **encapsulated** in **MPEG** packets having the **DOCSIS** PID in the preferred embodiment, but in alternative embodiments, the CIVITS 20 may be programmed...

...over-IP IP packets. These also would be supplied to DOCSIS communication protocols 20 and **encapsulated** into MAC frames which are **encapsulated** in **MPEG** packets having the **DOCSIS** PID or the private data PID.

MPEG packets, as the term is used herein means...the MAC address of the STB which requested the service. The MAC frame is then **encapsulated** in

an **MPEG** packet having the **DOCSIS** PID. Since the STB knows it requested the conditional access data for a particular service...services shifted to the other MPEG transport stream will be re-transmitted or, in the **case** of new M&C messages, transmitted in **MPEG** packets having the **DOCSIS** PID included in the other MPEG transport stream. This relieves congesion on the DOCSIS PID...

...to switches or routers in the IP cloud network 269. A CMTS 271 supplies downstream **DOCSIS** **MPEG** packets **encapsulated** in IP packets on line 5 273 (DOCSIS data packets) to the IP cloud 269...

Claim
... box and encapsulating 1 9 said MAC frame in an MPEG packet having the reserved **DOCSIS** PID of an **MPEG**
2 0 transport stream;
2 1 (6) **encapsulating** all other management and control data retrieved or
generated in step (3) in IP packets...

...address of the STB which ordered the service to which said EMM message pertains, and **encapsulating** each said MAC frame in an **MPEG** packet having a **DOCSIS** PID.

17 The process of claim 15 wherein step 9 comprises encapsulating each said lp...

...I 0 device(s) and/or process(es) which requested said other service data, and **encapsulate** 1 1 said MAC frames in **MPEG** packets having a **DOCSIS** PID, and wherein said computer 1 2 executing a transport multiplexer process is programmed to...

...of only the set top boxes which need said management and control data, and to **encapsulate** said MAC frames in **MPEG** packets having said **DOCSIS** PID.

24 The head end apparatus of claim 18 further comprising a digital video broadcast...

...system also programmed to generate and output to said 2 1 IP switching network downstream **DOCSIS** messages **encapsulated** in **MPEG** packets 2 2 which are **encapsulatated** in IP packets, said DOCSIS messages including messages 2 3 containing managment and control data...

...IP packet headers from said IP packets appearing at said output and 3 1 route **encapsulated** MPEG packets having a **DOCSIS** PID to a first output and 3 2 route encapsulated MPEG packets having PIDs of...

15/3,K/2 (Item 2 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT

01013798
QUALITY OF SERVICE CONTROL OF STREAMED CONTENT DELIVERY
QUALITE DU REGLAGE DE SERVICE DE LA DISTRIBUTION CONTINUE DE CONTENUS
Patent Applicant/Assignee:
AEROCAST COM INC, 5744 Pacific Center Boulevard, Suite 301, San Diego, CA 92121, US, US (Residence), US (Nationality)

Inventor(s):
KAUFFMAN Marc W, 961 Olive Crest Drive, Encinitas, CA 92024, US,
Legal Representative:
KULAS Charles J (et al) (agent), TOWNSEND AND TOWNSEND AND CREW LLP, 2 Embarcadero Center, 8th Floor, San Francisco, CA 94111, US,
Patent and Priority Information (Country, Number, Date):
Patent: WO 200342856 A2-A3 20030522 (WO 0342856)
Application: WO 2002US36853 20021114 (PCT/WO US02036853)
Priority Application: US 20012469 20011114
Designated States:
(Protection type is "patent" unless otherwise stated - for applications prior to 2004)
AE AG AL AM AT (utility model) AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ (utility model) CZ DE (utility model) DE DK (utility model) DK DM DZ EC EE (utility model) EE ES FI (utility model) FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT RO RU SC SD SE SG SI SK (utility model) SK SL TJ TM TN TR TT TZ UA UG UZ VC VN YU ZA ZM ZW
(EP) AT BE BG CH CY CZ DE DK EE ES FI FR GB GR IE IT LU MC NL PT SE SK TR
(OA) BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG
(AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZM ZW
(EA) AM AZ BY KG KZ MD RU TJ TM
Publication Language: English
Filing Language: English
Fulltext Word Count: 8522

Fulltext Availability:
Detailed Description

Detailed Description
... The enhanced STB 136 of this embodiment 320 can receive content objects from either the **DOCSIS** port or the **MPEG** -2 datastream.

In the **case** where the STB 136@ 138 receives content objects through the MPEG-2 datastrearn 'the navigational...

15/3,K/3 (Item 3 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT

01012866 **Image available**
STREAMED CONTENT DELIVERY
DISTRIBUTION CONTINUE DE CONTENUS
Patent Applicant/Assignee:
AEROCAST COM INC, 5744 Pacific Center Boulevard, Suite 301, San Diego, CA 92121, US, US (Residence), US (Nationality)
GENERAL INSTRUMENT CORPORATION, 101 Tournament Drive, Horsham, PA 19044, US, US (Residence), US (Nationality)
Inventor(s):
KAUFFMAN Marc W, 961 Olive Crest Drive, Encinitas, CA 92024, US,
MAKOFKA Douglas S, 516 Fairhill Street, Willow Grove, PA 19044, US,
Legal Representative:
KULAS Charles J (et al) (agent), Townsend and Townsend and Crew LLP, 2 Embarcadero Center, 8th Floor, San Francisco, CA 94111, US,
Patent and Priority Information (Country, Number, Date):
Patent: WO 200342795 A2-A3 20030522 (WO 0342795)
Application: WO 2002US36854 20021114 (PCT/WO US02036854)
Priority Application: US 20012838 20011114

Designated States:
(Protection type is "patent" unless otherwise stated - for applications prior to 2004)
AE AG AL AM AT (utility model) AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ (utility model) CZ DE (utility model) DE DK (utility model) DK DM DZ EC EE (utility model) EE ES FI (utility model) FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT RO RU SC SD SE SG SI SK (utility model) SK SL TJ TM TN TR TT TZ UA UG UZ VC VN YU ZA ZM ZW
(EP) AT BE BG CH CY CZ DE DK EE ES FI FR GB GR IE IT LU MC NL PT SE SK TR
(OA) BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG
(AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZM ZW
(EA) AM AZ BY KG KZ MD RU TJ TM
Publication Language: English
Filing Language: English
Fulltext Word Count: 8472

Fulltext Availability:
Detailed Description

Detailed Description
... The enhanced STI3 136 of this embodiment 320 can receive content objects from either the **DOCSIS** poit or the **MPEG** -2 datastream.

In the **case** where the STB 136, 138 receives content objects through the MPEG-2 datastream, the navigational...

15/3,K/4 (Item 4 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT

00991726 **Image available**
ACTIVE CABLE MODEM OUTSIDE CUSTOMER PREMISES
MODEM CABLE ACTIF HORS LOCAUX CLIENTS
Patent Applicant/Assignee:
TERAYON COMMUNICATION SYSTEMS INC, 4988 Great America Parkway, Santa Clara, CA 95054, US, US (Residence), US (Nationality)
Inventor(s):
RAKIB Selim Shlomo, 10271 West Acres, Cupertino, CA 95014, US,
Legal Representative:
FISH Ronald C (agent), Ronald Craig Fish, a Law Corporation, P.O. Box 2258, Morgan Hill, CA 95038, US,
Patent and Priority Information (Country, Number, Date):
Patent: WO 200321803 A1 20030313 (WO 0321803)
Application: WO 2002US21214 20020701 (PCT/WO US0221214)
Priority Application: US 2001942816 20010829
Designated States:
(Protection type is "patent" unless otherwise stated - for applications prior to 2004)
CA JP KR
(EP) AT BE BG CH CY CZ DE DK EE ES FI FR GB GR IE IT LU MC NL PT SE SK TR
Publication Language: English
Filing Language: English
Fulltext Word Count: 26831

Fulltext Availability:
Detailed Description

Detailed Description
... modem and which are to be sent to the CMTS. Typically, the LAN packets are **encapsulated** into **DOCSIS** format packets or **MPEG** packets or ATM cells etc. in both the upstream and downstream directions. The exact formatting...

15/3,K/5 (Item 5 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT
(c) 2005 WIPO/Univentio. All rts. reserv.

00975724 **Image available**
REMOTE CONTROL FOR DVR ENABLED HOME GATEWAY
TELECOMMANDE POUR UNE PASSERELLE DOMESTIQUE ACTIVEE PAR ENREGISTREUR VIDEO NUMERIQUE
Patent Applicant/Assignee:
TERAYON COMMUNICATION SYSTEMS INC, 4988 Great America Parkway, Santa Clara, CA 95054, US, US (Residence), US (Nationality)
Inventor(s):
SELIM Shlomo Rakib, 10271 West Acres, Cupertino, CA 95014, US,
Legal Representative:
FISH Ronald C (agent), Ronald Craig Fish, a Law Corporation, P.O. Box 2258, Morgan Hill, CA 95038, US,
Patent and Priority Information (Country, Number, Date):
Patent: WO 200305723 A1 20030116 (WO 0305723)
Application: WO 2002US20989 20020701 (PCT/WO US0220989)
Priority Application: US 2001898728 20010703
Designated States:
(Protection type is "patent" unless otherwise stated - for applications prior to 2004)
CA JP KR
(EP) AT BE BG CH CY CZ DE DK EE ES FI FR GB GR IE IT LU MC NL PT SE SK TR
Publication Language: English
Filing Language: English
Fulltext Word Count: 22710

Fulltext Availability:
Detailed Description

Detailed Description
... medium 14 to gateway 10. The data of the movies is compressed and may be **encapsulated** into ATM cells or sent via **DOCSIS** **MPEG** packets or using any other suitable transport protocol that can 35 provide the bandwidth, reliability...

15/3,K/6 (Item 6 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT
(c) 2005 WIPO/Univentio. All rts. reserv.

00975715 **Image available**
DVR ENABLED GATEWAY FOR HOME NETWORK
PASSERELLE VALIDEE PAR DVR POUR RESEAU DOMESTIQUE
Patent Applicant/Assignee:
TERAYON COMMUNICATION SYSTEMS INC, 4988 Great America Parkway, Santa Clara, CA 95054, US, US (Residence), US (Nationality)
Inventor(s):
RAKIB Selim Shlomo, 10271 West Acres, Cupertino, CA 95014, US,
Legal Representative:

FISH Ronald C (agent), Ronald Craig Fish, a Law Corporation, P.O. Box 2258, Morgan Hill, CA 95038, US,
Patent and Priority Information (Country, Number, Date):
Patent: WO 200305714 A1 20030116 (WO 0305714)
Application: WO 2002US21067 20020701 (PCT/WO US0221067)
Priority Application: US 2001898675 20010703
Designated States:
(Protection type is "patent" unless otherwise stated - for applications prior to 2004)
CA JP KR
(EP) AT BE BG CH CY CZ DE DK EE ES FI FR GB GR IE IT LU MC NL PT SE SK TR
Publication Language: English
Filing Language: English
Fulltext Word Count: 24040

Fulltext Availability:
Detailed Description

Detailed Description
... 14 to gateway 1 0. The data of the movies is compressed and may be **encapsulated** into ATM cells or sent via **DOCSIS** **MPEG** packets or using any other suitable transport , protocol that can provide the bandwidth, reliability, packet...

15/3,K/7 (Item 7 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT

00975352 **Image available**
REMOTE CONTROL WHICH CAN DISPLAY VIDEO
TELECOMMANDE A AFFICHAGE VIDEO
Patent Applicant/Assignee:
TERAYON COMMUNICATION SYSTEMS INC, 4988 Great America Parkway, Santa Clara, CA 95054, US, US (Residence), US (Nationality)
Inventor(s):
SELIM Shlomo Rakib, 10271 West Acres, Cupertino, CA 95014, US,
Legal Representative:
FISH Ronald C (agent), Ronald Craig Fish, a Law Corporation, P.O. Box 2258, Morgan Hill, CA 95038, US,
Patent and Priority Information (Country, Number, Date):
Patent: WO 200305320 A2-A3 20030116 (WO 0305320)
Application: WO 2002US20958 20020701 (PCT/WO US0220958)
Priority Application: US 2001898642 20010703
Designated States:
(Protection type is "patent" unless otherwise stated - for applications prior to 2004)
CA JP KR
(EP) AT BE BG CH CY CZ DE DK EE ES FI FR GB GR IE IT LU MC NL PT SE SK TR
Publication Language: English
Filing Language: English
Fulltext Word Count: 21567

Fulltext Availability:
Detailed Description

Detailed Description
... 14 to gateway 1 0. The data of the movies is compressed and may be **encapsulated** into ATM cells or sent via **DOCSIS** **MPEG** packets or using

any other suitable transport protocol that can provide the bandwidth, reliability, packet...

15/3,K/8 (Item 8 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT

00828356 **Image available**
CABLE MODEM HAVING A PROGRAMMABLE MEDIA ACCESS CONTROLLER
MODEM CABLE COMPRENANT UNE COMMANDE D'ACCES AU SUPPORT (MAC) PROGRAMMABLE
Patent Applicant/Assignee:
CONEXANT SYSTEMS INC, 4311 Jamboree Road, Newport Beach, CA 92660-3095, US, US (Residence), US (Nationality)
Inventor(s):
BROOKS John M, 7071 Quiet Retreat Court, Niwot, CO 80503, US,
BERNATH Brett A, 4167 Calle Mar de Ballenas, San Diego, CA 92130, US,
Legal Representative:
SHORT Shayne X (agent), Akin, Gump, Strauss, Hauer & Feld, L.L.P., 816 Congress Avenue, 19th Floor, Austin, TX 78701, US,
Patent and Priority Information (Country, Number, Date):
Patent: WO 200161935 A1 20010823 (WO 0161935)
Application: WO 2001US5028 20010216 (PCT/WO US0105028)
Priority Application: US 2000183130 20000217; US 2001785035 20010216
(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE TR
Publication Language: English
Filing Language: English
Fulltext Word Count: 6533
Fulltext Availability:
Detailed Description

Detailed Description
... to, DOCKS, DAVIC/DVB (Digital Video Broadcasting) and Voice Over IP (VOIP) standards. In the **case** of **DOCSIS** , typical MAC functionality includes **MPEG** and MCNS decoding and frame synchronization.

In the cable modem device 100 of Figure 1...

18/3,K/1 (Item 1 from file: 348)
DIALOG(R)File 348:EUROPEAN PATENTS

01790720
Intelligent video information management system
Intelligentes Videoinformationsverwaltungssystem
Systeme intelligent pour gerer des informations video
PATENT ASSIGNEE:
Sensormatic Electronics Corporation, (882795), 6600 Congress Avenue, Boca Raton, Florida 33487, (US), (Applicant designated States: all)
INVENTOR:
Klein, Harry Eric, 9627 Babuata Road,, San Diego, CA92129, (US)
Winter, Gerhard Josef, 7408 Park Village Road,, San Diego, CA 92129, (US)
MacCormack, David Ross, 3344 31st Street,, San Diego, CA 92104, (US)
Lin-Liu, Sen, 13005 Brixton Place,, San Diego, CA 92130, (US)
N'Guyen, Lyn, 3114 Chollas Road,, San Diego, CA 92105, (US)
N'Guyen, William Tanh, 10642 Mallard Drive,, Garden Grove, CA 92843, (US)
Wilson, Charles Park, 9807 Highdale Road, Santee, CA 92701, (US)
LEGAL REPRESENTATIVE:
Hafner, Dieter, Dr. et al (52276), Hafner & Partner GbR
Patent-/Rechtsanwalte Schleiermacherstrasse 25, 90491 Nurnberg, (DE)
PATENT (CC, No, Kind, Date): EP 1463325 A2 040929 (Basic)
EP 1463325 A2 040929
APPLICATION (CC, No, Date): EP 2004004126 971001;
PRIORITY (CC, No, Date): US 742017 961031; US 741715 961031; US 740628 961031; US 741982 961031; US 741914 961031; US 741983 961031; US 729620 961031; US 740651 961031; US 742015 961031; US 741650 961031; US 740627 961031
DESIGNATED STATES: DE; FR; GB
RELATED PARENT NUMBER(S) - PN (AN):
EP 1010315 (EP 97910786)
INTERNATIONAL PATENT CLASS: **H04N-007/18**
ABSTRACT WORD COUNT: 139
NOTE:
Figure number on first page: 1

LANGUAGE (Publication,Procedural,Application): English; English; English
FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	200440	2239
SPEC A	(English)	200440	75082
Total word count - document A			77321
Total word count - document B			0
Total word count - documents A + B			77321

INTERNATIONAL PATENT CLASS: **H04N-007/18**

...SPECIFICATION image rate. The step of determining whether an alarm condition is present may include analyzing **content** of at least one of the streams of video information and/or receiving a signal...the desired sequence for capturing the camera signal streams is generated (step 1584). The resulting **message** is **formatted** for receipt by the front end board controller (step 1586).
At step 1588 it is...

...and decoded. At step 1782, the decoded input signal data is translated into a standard **message format** , and at step 1784, the user interface

software component sends a corresponding message or messages...step 2058. As shown in Fig. 93B, the controller DSP first receives the "analysis aborted" **message** (step 2076), then **formats** a suitable **message** for receipt by the motherboard (step 2078) and forwards the message to the system director...

...from Fig. 93C, the controller DSP receives the message reporting the detected event (step 2082), **formats** a suitable **message** to report the event to the motherboard (step 2084), and then sends the message to...

18/3,K/2 (Item 2 from file: 348)
DIALOG(R)File 348:EUROPEAN PATENTS

01781142
Intelligent video information management system
Intelligentes Videoinformationsverwaltungssystem
Systeme intelligent pour gerer des informations video
PATENT ASSIGNEE:
Sensormatic Electronics Corporation, (882795), 6600 Congress Avenue, Boca Raton, Florida 33487, (US), (Applicant designated States: all)
INVENTOR:
The designation of the inventor has not yet been filed
LEGAL REPRESENTATIVE:
Hafner, Dieter, Dr. et al (52276), Hafner & Partner GbR
Patent-/Rechtsanwalte Schleiermacherstrasse 25, 90491 Nurnberg, (DE)
PATENT (CC, No, Kind, Date): EP 1453312 A2 040901 (Basic)
EP 1453312 A2 040901
EP 1453312 A3 041110
APPLICATION (CC, No, Date): EP 2004004120 971001;
PRIORITY (CC, No, Date): US 742017 961031; US 741715 961031; US 740628 961031; US 741982 961031; US 741914 961031; US 741983 961031; US 729620 961031; US 740651 961031; US 742015 961031; US 741650 961031; US 740627 961031
DESIGNATED STATES: DE; FR; GB
RELATED PARENT NUMBER(S) - PN (AN):
EP 1010315 (EP 97910786)
INTERNATIONAL PATENT CLASS: **H04N-005/76** ; **H04N-007/18**
ABSTRACT WORD COUNT: 139
NOTE:
Figure number on first page: NONE

LANGUAGE (Publication,Procedural,Application): English; English; English
FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	200436	3365
SPEC A	(English)	200436	75079
Total word count - document A			78444
Total word count - document B			0
Total word count - documents A + B			78444

INTERNATIONAL PATENT CLASS: **H04N-005/76** ...

... **H04N-007/18**

...SPECIFICATION image rate. The step of determining whether an alarm condition is present may include analyzing **content** of at least one of the streams of video information and/or receiving a signal...the desired

sequence for capturing the camera signal streams is generated (step 1584). The resulting **message** is **formatted** for receipt by the front end board controller (step 1586).
At step 1588 it is...

...and decoded. At step 1782, the decoded input signal data is translated into a standard **message format** , and at step 1784, the user interface software component sends a corresponding message or messages...step 2058. As shown in Fig. 93B, the controller DSP first receives the "analysis aborted" **message** (step 2076), then **formats** a suitable **message** for receipt by the motherboard (step 2078) and forwards the message to the system director...

...from Fig. 93C, the controller DSP receives the message reporting the detected event (step 2082), **formats** a suitable **message** to report the event to the motherboard (step 2084), and then sends the message to...

18/3,K/3 (Item 3 from file: 348)
DIALOG(R)File 348:EUROPEAN PATENTS

01781141
Intelligent video information management system
Intelligentes Videoinformationsverwaltungssystem
Systeme intelligent pour gerer des informations video
PATENT ASSIGNEE:
Sensormatic Electronics.Corporation, (882795), 6600 Congress Avenue, Boca Raton, Florida 33487, (US), (Applicant designated States: all)
INVENTOR:
The designation of the inventor has not yet been filed
LEGAL REPRESENTATIVE:
Hafner, Dieter, Dr. et al (52276), Hafner & Partner GbR
Patent-/Rechtsanwalte Schleiermacherstrasse 25, 90491 Nurnberg, (DE)
PATENT (CC, No, Kind, Date): EP 1453311 A2 040901 (Basic)
EP 1453311 A2 040901
EP 1453311 A3 041110
APPLICATION (CC, No, Date): EP 2004004119 971001;
PRIORITY (CC, No, Date): US 742017 961031; US 741715 961031; US 740628 961031; US 741982 961031; US 741914 961031; US 741983 961031; US 729620 961031; US 740651 961031; US 742015 961031; US 741650 961031; US 740627 961031
DESIGNATED STATES: DE; FR; GB
RELATED PARENT NUMBER(S) - PN (AN):
EP 1010315 (EP 97910786)
INTERNATIONAL PATENT CLASS: **H04N-005/76** ; **H04N-007/18**
ABSTRACT WORD COUNT: 139
NOTE:
Figure number on first page: NONE

LANGUAGE (Publication,Procedural,Application): English; English; English
FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	200436	2418
SPEC A	(English)	200436	75076
Total word count - document A			77494
Total word count - document B			0
Total word count - documents A + B			77494

INTERNATIONAL PATENT CLASS: **H04N-005/76 ...**

... H04N-007/18

...SPECIFICATION image rate. The step of determining whether an alarm condition is present may include analyzing **content** of at least one of the streams of video information and/or receiving a signal...the desired sequence for capturing the camera signal streams is generated (step 1584). The resulting **message** is **formatted** for receipt by the front end board controller (step 1586).
At step 1588 it is...

...and decoded. At step 1782, the decoded input signal data is translated into a standard **message format** , and at step 1784, the user interface software component sends a corresponding message or messages...step 2058. As shown in Fig. 93B, the controller DSP first receives the "analysis aborted" **message** (step 2076), then **formats** a suitable **message** for receipt by the motherboard (step 2078) and forwards the message to the system director...

...from Fig. 93C, the controller DSP receives the message reporting the detected event (step 2082), **formats** a suitable **message** to report the event to the motherboard (step 2084), and then sends the message to...

18/3,K/4 (Item 4 from file: 348)
DIALOG(R)File 348:EUROPEAN PATENTS

01778599
Intelligent video information management system
Intelligentes Videoinformationsverwaltungssystem
Systeme intelligent pour gerer des informations video
PATENT ASSIGNEE:
Sensormatic Electronics Corporation, (882795), 6600 Congress Avenue, Boca Raton, Florida 33487, (US), (Applicant designated States: all)
INVENTOR:
Maccormack, David Ross, 3344 31st Street, San Diego CA 92104, (US)
Nunally, Patrick O., 2227 Villa Verde Road, San Diego CA 92029, (US)
Wilson, Charles Park, 9807 Highdale Road, Santee CA 92071, (US)
Winter, Gerhard Josef, 7408 Park Village Road, San Diego CA 92129, (US)
LEGAL REPRESENTATIVE:
Hafner, Dieter, Dr. et al (52276), Hafner & Partner GbR
Patent-/Rechtsanwalte Schleiermacherstrasse 25, 90491 Nurnberg, (DE)
PATENT (CC, No, Kind, Date): EP 1450559 A1 040825 (Basic)
EP 1450559 A1 040825
APPLICATION (CC, No, Date): EP 2004004125 971001;
PRIORITY (CC, No, Date): US 742017 961031; US 741715 961031; US 740628 961031; US 741982 961031; US 741914 961031; US 741983 961031; US 729620 961031; US 740651 961031; US 742015 961031; US 741650 961031; US 740627 961031
DESIGNATED STATES: DE; FR; GB
RELATED PARENT NUMBER(S) - PN (AN):
EP 1010315 (EP 97910786)
INTERNATIONAL PATENT CLASS: **H04N-005/76** ; **H04N-007/18**
ABSTRACT WORD COUNT: 139
NOTE:
Figure number on first page: NONE

LANGUAGE (Publication,Procedural,Application): English; English; English
FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	200435	402
SPEC A	(English)	200435	75063
Total word count - document A			75465
Total word count - document B			0
Total word count - documents A + B			75465

INTERNATIONAL PATENT CLASS: **H04N-005/76** ...

... **H04N-007/18**
...SPECIFICATION image rate. The step of determining whether an alarm condition is present may include analyzing **content** of at least one of the streams of video information and/or receiving a signal...the desired sequence for capturing the camera signal streams is generated (step 1584). The resulting **message** is **formatted** for receipt by the front end board controller (step 1586).
At step 1588 it is...and decoded. At step 1782, the decoded input signal data is translated into a standard **message format**, and at step 1784, the user interface software component sends a corresponding message or messages...step 2058. As shown in Fig. 93B, the controller DSP first receives the "analysis aborted" **message** (step 2076), then **formats** a suitable **message** for receipt by the motherboard (step 2078) and forwards the message to the system director...

...from Fig. 93C, the controller DSP receives the message reporting the detected event (step 2082), **formats** a suitable **message** to report the event to the motherboard (step 2084), and then sends the message to...

18/3,K/5 (Item 1 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT

01004653 **Image available**
SERVICE DATA DELIVERY SYSTEM
SYSTEME DE DISTRIBUTION DE DONNEES DE SERVICE
Patent Applicant/Assignee:
KONINKLIJKE PHILIPS ELECTRONICS N V, Groenewoudseweg 1, NL-5621 BA Eindhoven, NL, NL (Residence), NL (Nationality)
Inventor(s):
SCHOLTEN Liesbeth M, Prof . Holstlaan 6, NL-5656 AA Eindhoven, NL,
RANKIN Paul J, Prof . Holstlaan 6, NL-5656 AA Eindhoven, NL,
EVERETT Timothy J, Prof . Holstlaan 6, NL-5656 AA Eindhoven, NL,
Legal Representative:
WHITE Andrew G (agent), Internationaal Octrooibureau B.V., Prof. Holstlaan 6, NL-5656 AA Eindhoven, NL,
Patent and Priority Information (Country, Number, Date):
Patent: WO 200334679 A2-A3 20030424 (WO 0334679)
Application: WO 2002IB3845 20020918 (PCT/WO IB0203845)
Priority Application: GB 200125018 20011018
Designated States:
(Protection type is "patent" unless otherwise stated - for applications prior to 2004)
CN JP
(EP) AT BE BG CH CY CZ DE DK EE ES FI FR GB GR IE IT LU MC NL PT SE SK TR
Publication Language: English

Filing Language: English
Fulltext Word Count: 12437

International Patent Class: **H04N-007/173**
Fulltext Availability:
Claims

Claim
... consumer electronics device suitable to embody the invention;
Figures 12A and B schematically represent a **removable** record carrier carrying **content** with, respectively, embedded and associated connection data;
Figure 13 schematically represents the supply of content and connection data in an e-mail **message format** ;
Figure 14 shows a fifth configuration of content supplier a n-d consumer electronics device...
?

20/3,K/1 (Item 1 from file: 348)
DIALOG(R)File 348:EUROPEAN PATENTS

01927008
Apparatus and method for synchronizing an SCDMA upstream or any other type upstream to an MCNS downstream or any other type downstream with a different clock rate than the upstream
Vorrichtung und Verfahren zur Synchronisierung eines Aufwartskanals der Art SCDMA oder einer anderen Art mit einem Abwartskanal der Art MCNS oder einer anderen Art mit einem unterschiedlichen Takt als der des Aufwartskanals
Systeme et methode de synchronisation d'un canal amont de type SCDMA ou **d'un autre type a un canal aval de type MCMS ou d'un autre type avec une frequence d'horloge differente de celle du canal amont**
PATENT ASSIGNEE:
Terayon Communication Systems, Inc., (2769080), 2952 Bunker Hill Lane, Santa Clara, CA 95054, (US), (Applicant designated States: all)
INVENTOR:
Grimwood, Michael, 839 E.Meadow Drive, Palo Alto, CA 94303, (US)
Knittel, Jim, 585 Wendell Drive, Campbell, CA 95008, (US)
Richardson, Paul, 3432 Cadillac Drive, San Jose, CA 95117, (US)
Rakib, Selim Shlomo, 23057 Cricket Hill Road, Cupertino, CA 95014, (US)
Lind, Paul Alan, 258 Waugh Avenue, Santa Cruz, CA 95065, (US)
Artman, Doug, 1434 Iris Court, San Jose, CA 95125, (US)
LEGAL REPRESENTATIVE:
Howe, Steven (79532), Lloyd Wise Commonwealth House, 1-19 New Oxford Street, London WC1A 1LW, (GB)
PATENT (CC, No, Kind, Date): EP 1553716 A2 050713 (Basic)
APPLICATION (CC, No, Date): EP 2005075778 980506;
PRIORITY (CC, No, Date): US 74036 980506
DESIGNATED STATES: CH; DE; ES; FI; FR; GB; IT; LI; NL; SE
RELATED PARENT NUMBER(S) - PN (AN):
EP 955742 (EP 99660075)
INTERNATIONAL PATENT CLASS: H04J-013/02; H04J-003/06; H04J-003/16; H04L-007/033
ABSTRACT WORD COUNT: 189
NOTE:
Figure number on first page: 1

LANGUAGE (Publication,Procedural,Application): English; English; English
FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	200528	4903
SPEC A	(English)	200528	32541
Total word count - document A			37444
Total word count - document B			0
Total word count - documents A + B			37444

...SPECIFICATION use in digital multi-service delivery through TV distribution systems is MCNS. In this standard, **MAC** layer data frames are broken down into MPEG packets which are 64-QAM or 256...

...a continuous stream after FEC encoding. The FEC encoding involves four layers of processing: the **MPEG** packets are broken up and **encoded** into Reed-Solomom blocks with block boundaries bearing no relationship to MPEG packet boundaries; an...

...The trailer is inserted by the R-S encoder and detected by the R-S **decoder** to locate FEC frame boundaries. There is no synchronization coupling between the FEC and transport...

20/3,K/2 (Item 2 from file: 348)
DIALOG(R)File 348:EUROPEAN PATENTS

01087407
Apparatus and method for synchronizing an SCDMA upstream or any other type upstream to an MCNS downstream or any other type downstream with a different clock rate than the upstream
Vorrichtung und Verfahren zur Synchronisierung eines Aufwartskanals der Art SCDMA oder einer anderen Art mit einem Abwartskanal der Art MCNS oder einer anderen Art mit einem unterschiedlichen Takt als der des Aufwartskanals
Systeme et methode de synchronisation d'un canal amont de type SCDMA ou d'un autre type a un canal aval de type MCMS ou d'un autre type avec une frequence d'horloge differente de celle du canal amont
PATENT ASSIGNEE:
Terayon Communication Systems, Inc., (2769080), 2952 Bunker Hill Lane, Santa Clara, CA 95054, (US), (Proprietor designated states: all)
INVENTOR:
Grimwood, Michael, 839 E. Meadow Drive, Palo Alto, CA 94303, (US)
Knittel, Jim, 585 Wendell Drive, Campbell, CA 95008, (US)
Richardson, Paul, 3432 Cadillac Drive, San Jose, CA 95117, (US)
Rakib, Selim Shlomo, 23057 Cricket Hill Road, Cupertino, CA 95014, (US)
Lind, Paul Alan, 258 Waugh Avenue, Santa Cruz, CA 95065, (US)
Artman, Doug, 1434 Iris Court, San Jose, CA 95125, (US)
LEGAL REPRESENTATIVE:
Howe, Steven et al (79532), Lloyd Wise Commonwealth House, 1-19 New Oxford Street, London WC1A 1LW, (GB)
PATENT (CC, No, Kind, Date): EP 955742 A2 991110 (Basic)
EP 955742 A3 001004
EP 955742 B1 050406
APPLICATION (CC, No, Date): EP 99660075 990506;
PRIORITY (CC, No, Date): US 74036 980506
DESIGNATED STATES: CH; DE; ES; FI; FR; GB; IT; LI; NL; SE
EXTENDED DESIGNATED STATES: AL; LT; LV; MK; RO; SI
RELATED DIVISIONAL NUMBER(S) - PN (AN):
(EP 2005075778)
INTERNATIONAL PATENT CLASS: H04J-011/00; H04J-013/02; H04J-003/06; H04L-007/033; H04J-003/16
ABSTRACT WORD COUNT: 189
NOTE:
Figure number on first page: 1

LANGUAGE (Publication,Procedural,Application): English; English; English
FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	199945	4963
CLAIMS B	(English)	200514	12344
CLAIMS B	(German)	200514	10609
CLAIMS B	(French)	200514	14774
SPEC A	(English)	199945	32545
SPEC B	(English)	200514	32706

Total word count - document A 37513

Total word count - document B 70433
Total word count - documents A + B 107946

...SPECIFICATION a continuous stream after FEC encoding. The FEC encoding involves four layers of processing: the **MPEG** packets are broken up and **encoded** into Reed-Solomom blocks with block boundaries bearing no relationship to MPEG packet boundaries; an...

...The trailer is inserted by the R-S encoder and detected by the R-S **decoder** to locate FEC frame boundaries. There is no synchronization coupling between the FEC and transport...

...SPECIFICATION use in digital multi-service delivery through TV distribution systems is MCNS. In this standard, **MAC** layer data frames are broken down into MPEG packets which are 64-QAM or 256...

...a continuous stream after FEC encoding. The FEC encoding involves four layers of processing: the **MPEG** packets are broken up and **encoded** into Reed-Solomon blocks with block boundaries bearing no relationship to MPEG packet boundaries; an...

...The trailer is inserted by the R-S encoder and detected by the R-S **decoder** to locate FEC frame boundaries. There is no synchronization coupling between the FEC and transport...

20/3,K/3 (Item 3 from file: 348)
DIALOG(R)File 348:EUROPEAN PATENTS

00734771
Method and apparatus for offering a receiver a first number of video signals from a transmitter
Verfahren und Vorrichtung zum Anbieten einer ersten Anzahl von Videosignalen von einem Sender zu einem Empfanger
Methode et dispositif pour delivrer un premier nombre de signaux video d'un emetteur vers un recepteur
PATENT ASSIGNEE:
Koninklijke PTT Nederland N.V., (1066890), P.O. Box 95321, NL-2509 CH The Hague, (NL), (applicant designated states: AT;BE;CH;DE;DK;ES;FR;GB;GR;IE;IT;LI;LU;NL;PT;SE)
INVENTOR:
Gabriel, Christiaan M.W., Moerbeistraat 32, NL-2321 DJ Leiden, (NL)
PATENT (CC, No, Kind, Date): EP 692910 A1 960117 (Basic)
APPLICATION (CC, No, Date): EP 95201820 950704;
PRIORITY (CC, No, Date): NL 941150 940712
DESIGNATED STATES: AT; BE; CH; DE; DK; ES; FR; GB; GR; IE; IT; LI; LU; NL; PT; SE
INTERNATIONAL PATENT CLASS: H04N-007/173; H04N-007/58;
ABSTRACT WORD COUNT: 180
LANGUAGE (Publication,Procedural,Application): English; English; English
FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	EPAB96	1073
SPEC A	(English)	EPAB96	8715

Total word count - document A 9788
Total word count - document B 0
Total word count - documents A + B 9788

...SPECIFICATION so-called PAL encoders or NTSC encoders. In that case, converter 11 comprises so-called **MPEG** -2 **decoders** and PAL **encoders** or NTSC encoders coupled thereto. Furthermore, video signals of high quality could be formed by...

...HDTV standard, in which case further transmitter unit 2 will comprise, for example, so-called **MAC** encoders. In that case, converter 11 comprises so-called **MAC** **decoders** and PAL encoders or NTSC encoders coupled thereto.

If the video signals of high quality are digital video signals **encoded** according to the **MPEG** -2 standard and transmitter unit 1 comprises so-called **MPEG** -2 **encoders** which are each composed of pyramidal layers, it becomes possible to replace the two **decoders** 32 and 33 by one so-called MPEG-2 **decoder** which automatically adjusts, for example, to the desired quality of the video signal to be **decoded** . If the video signals of low quality are formed by analog video signals built up according to the PAL standard or the NTSC standard, **decoder** 33 should be a so-called PAL **decoder** or NTSC **decoder** , while **decoder** 32 is, for example, a MPEG-2 **decoder** . If the video signals of high quality are formed by analog video signals built up according to the HDTV standard, **decoder** 32 should be, for example, a so-called **MAC** **decoder** , while **decoder** 33 is, for example a PAL **decoder** or NTSC **decoder** .

Access circuit 3 comprises, for example, a table memory in which an identification code with...

20/3,K/4 (Item 1 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT
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01201875
VIRTUAL COLLABORATIVE EDITING ROOM
SALLE DE MONTAGE VIRTUELLE DE COLLABORATION
Patent Applicant/Assignee:
DREAMWORKS LLC, 1000 Flower Street, Glendale, CA 91201, US, US (Residence), US (Nationality), (For all designated states except: US)
Patent Applicant/Inventor:
MODER Steven P, 3383 Copley Street, Simi Valley, CA 93063, US, US (Residence), US (Nationality), (Designated only for: US)
FRANCISCO Emmanuel C, 8914 Rhea Avenue, Northridge, CA 91324, US, US (Residence), US (Nationality), (Designated only for: US)
RUBIO Richard, 1036 Concha Street, Altadena, CA 91001, US, US (Residence), US (Nationality), (Designated only for: US)
BESHEARS James F, 1752 Russett Lane, San Marino, CA 91108, US, US (Residence), US (Nationality), (Designated only for: US)
Legal Representative:
DURANT Stephen C (agent), Morrison & Foerster LLP, 425 Market Street, San Francisco, CA 94105-2482, US,
Patent and Priority Information (Country, Number, Date):
Patent: WO 200509023 A2-A3 20050127 (WO 0509023)
Application: WO 2004US21819 20040707 (PCT/WO US04021819)
Priority Application: US 2003615337 20030707
Designated States:
(All protection types applied unless otherwise stated - for applications 2004+)
AE AG AL AM AT AU AZ BA BB BG BR BW BY BZ CA CH CN CO CR CU CZ DE DK DM

DZ EC EE EG ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC
LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NA NI NO NZ OM PG PH PL PT RO
RU SC SD SE SG SK SL SY TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW
(EP) AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LU MC NL PL PT RO
SE SI SK TR
(OA) BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG
(AP) BW GH GM KE LS MW MZ NA SD SL SZ TZ UG ZM ZW
(EA) AM AZ BY KG KZ MD RU TJ TM
Publication Language: English
Filing Language: English
Fulltext Word Count: 6986

Fulltext Availability:
Detailed Description

Detailed Description
... definition (HD) plasma display panels, high quality CODECs
7
such as the Miranda Technologies, Inc. **MAC** - 500 **MPEG** -2 **encode** / **decode** card, and high quality cameras 140, such as Panasonic 1/3" 3-CCD C-mount...

20/3,K/5 (Item 2 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT

01168770 **Image available**
BROADBAND MULTI-INTERFACE MEDIA MODULE
MODULE MULTIMEDIA A INTERFACES MULTIPLES A LARGE BANDE
Patent Applicant/Assignee:
ARRIS INTERNATIONAL INC, 3871 Lakefield Drive, Suwanee, GA 30024, US, US (Residence), US (Nationality), (For all designated states except: US)
Inventor(s):
CRAVEN Jeff, 2765 Portabella Lane, Cumming, GA 30041, **,
BUGAJSKI Mark, 4361 Riverbottom Drive, Norcross, GA 30092, **,
Legal Representative:
DOUGHTY John (agent), Arris International, Inc., 3871 Lakefield Drive, Suwanee, GA 30024, US,
Patent and Priority Information (Country, Number, Date):
Patent: WO 200491104 A2-A3 20041021 (WO 0491104)
Application: WO 2004US10116 20040331 (PCT/WO US04010116)
Priority Application: US 2003459103 20030331
Designated States:
(All protection types applied unless otherwise stated - for applications 2004+)
AE AG AL AM AT AU AZ BA BB BG BR BW BY BZ CA CH CN CO CR CU CZ DE DK DM
DZ EC EE EG ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC
LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NA NI NO NZ OM PG PH PL PT RO
RU SC SD SE SG SK SL SY TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW
(EP) AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LU MC NL PL PT RO
SE SI SK TR
(OA) BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG
(AP) BW GH GM KE LS MW MZ SD SL SZ TZ UG ZM ZW
(EA) AM AZ BY KG KZ MD RU TJ TM
Publication Language: English
Filing Language: English
Fulltext Word Count: 3403

Fulltext Availability:
Detailed Description

Detailed Description
... the DOCKS format information, as known in the art, and provides the resulting payload to **MAC** 36 which communicates via a bus interface to the **decoding** system. The messages received at **decoder** **MAC** 38 are forwarded to digital signal processor 40 for processing according to the type of content received. For example, if the content received is video content, it may typically be **encoded** in an 8 **MPEG** format, known in the art. Processor 40 then performs MPEG **decoding** on the received video content and provides the **decoded** content to one of video ports 42. From these video ports 42, the output signal...

20/3,K/6 (Item 3 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT

01137033 **Image available**
METHOD AND APPARATUS FOR ENCODING AND DECODING STEREOSCOPIC VIDEO
PROCEDE ET APPAREIL DE CODAGE ET DE DECODAGE DE VIDEO STEREOSCOPIQUE
Patent Applicant/Assignee:
ELECTRONICS AND TELECOMMUNICATIONS RESEARCH INSTITUTE, 161, Gajeong-dong, Yuseong-gu, Daejon 305-350, KR, KR (Residence), KR (Nationality), (For all designated states except: US)
Patent Applicant/Inventor:
CHO Suk-Hee, 301, 137-11, Sinseong-dong, Yuseong-gu, Daejon 305-804, KR, KR (Residence), KR (Nationality), (Designated only for: US)
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AHN Chie-Teuk, Expo Apt. 208-603, Jeonmin-dong, Yuseong-gu, Daejon 305-761, KR, KR (Residence), KR (Nationality), (Designated only for: US)
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Patent and Priority Information (Country, Number, Date):
Patent: WO 200459980 A1 20040715 (WO 0459980)
Application: WO 2003KR132 20030122 (PCT/WO KR03000132)
Priority Application: KR 1020020084724 20021227
Designated States:

(Protection type is "patent" unless otherwise stated - for applications prior to 2004)
AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT RO RU SC SD SE SG SK SL TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW
(EP) AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LU MC NL PT SE SI SK TR
(OA) BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG
(AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZM ZW
(EA) AM AZ BY KG KZ MD RU TJ TM
Publication Language: English
Filing Language: Korean
Fulltext Word Count: 13215

Fulltext Availability:
Detailed Description
Claims

Detailed Description
METHOD AND APPARATUS FOR ENCODING AND **DECODING** STEREOSCOPIC VIDEO
CROSS REFERENCE TO RELATED APPLICATION
This application claims priority to and the benefit...

...of the Invention
The present invention relates to a method and device for encoding and **decoding** stereoscopic video. More, specifically, the present invention
relates to a method and device for encoding and **decoding** stereoscopic video into an **encoding** stream by using a conventional **MPEG** -4 **MAC** (multiple auxiliary component.)
(b) Description of the Related Art
A MVP (multi-view profile) method for extending two-dimensional video **encoding** techniques in the **MPEG** -2 technology has been developed as a conventional stereoscopic video encoding method. As to the...

...one of the right and left images is
reconstructed when the conventional 2-dimensional video **decoder** reconstructs the data of the base layer, thereby maintaining compatibility
with the existing 2-dimensional video **decoder** system. An encoder of an enhancement layer uses correlation information provided between the right and...

Claim
... and the second image as auxiliary information of the first image is allocated to an **MPEG** -4 **MAC** and then **encoded / decoded** .

48 The method of claim 47, wherein the auxiliary information includes at least one of...

20/3,K/7 (Item 4 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT

00749056 **Image available**

GATEWAY WITH VOICE
PASSERELLE VOCALE

Patent Applicant/Assignee:
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Patent Applicant/Inventor:
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RABENKO Theodore F, Suite D, 3550 Corporate Way, Duluth, GA 30096, US, US (Residence), US (Nationality), (Designated only for: US)
THI James C H, 16215 Alton Parkway, Irvine, CA 92618-3616, US, US (Residence), US (Nationality), (Designated only for: US)
HARTMAN David, 16215 Alton Parkway, Irvine, CA 92618-3616, US, US (Residence), US (Nationality), (Designated only for: US)
Legal Representative:
GELFOUND Craig A (agent), Christie, Parker & Hale, LLP, P.O. Box 7068, Pasadena, CA 91109-7068, US,

Patent and Priority Information (Country, Number, Date):
Patent: WO 200062501 A2-A3 20001019 (WO 0062501)
Application: WO 2000US10149 20000413 (PCT/WO US0010149)
Priority Application: US 99129134 19990413; US 99136685 19990528; US 99154903 19990920; US 99156266 19990927; US 99157470 19991001; US 99160124 19991018; US 99161152 19991022; US 99162315 19991028; US 99163169 19991102; US 99163170 19991102; US 99163600 19991104; US 99164379 19991109; US 99164689 19991110; US 99164690 19991110; US 99166289 19991118; US 99454219 19991209; US 99171203 19991215; US 99171169 19991216; US 99171180 19991216; US 99171184 19991216; US 2000178258 20000125; US 2000493458 20000128; US 2000522185 20000309
Designated States:
(Protection type is "patent" unless otherwise stated - for applications prior to 2004)
AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CR CU CZ DE DK DM EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW
(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE
(OA) BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG
(AP) GH GM KE LS MW SD SL SZ TZ UG ZW

(EA) AM AZ BY KG KZ MD RU TJ TM
Publication Language: English
Filing Language: English
Fulltext Word Count: 80268
Fulltext Availability:
Detailed Description

Detailed Description
... are then passed off to an ITU-T J.83 Annex A/B/C compatible **decoder** . The integrated **decoder** performs error correction and forwards the processed received data, in either parallel or serial **MPEG** -2 format to a DOCSIS Media Access Controller (**MAC**) 112.

The output of the downstream demodulatorl 00 is coupled to the DOCSIS MAC 11...

...media independent interface I IO can forward data to and receive information from the Ethernet **MAC** 134. The Ethernet **MAC** I3)4 can also perform all the physical layer interface (PHY) functions for I OOBASE...

...Ethernet as well as I OBBASE-T full or half duplex. I 0 The Ethernet **MAC** 134 can also **decode** the received data in accordance with a variety of standards such as for example 4135b, MLT3, and Manchester **decoding** . The Ethernet **MAC** can perform clock and data recovery, stream cipher de-scrambling, and digital adaptive equalization.
The...MPEG-2 serial or parallel data, packet sync and a data clock.

The Annex B **decoder** includes five layers, trellis **decoding** , de-randomization, convolution de-interleaving, Reed-Solomon **decoding** and checksurn **decoding** . The Annex B concatenated coding scheme along with interleaving provides good coding gain to combat...

...against burst errors. Soft decisions from the adaptative equalizer 226 are input to the trellis **decoder** which estimates the maximum likelihood of a sequence. The output sequences are forwarded to a frame synchronization and de-randomization block similar to those described for the Annex A/C **decoders** . A Reed -Solomon **decoder** preferably corrects up to three symbol errors per RS block. The checksum **decoder** accurately I identifies block containing uncorrectable errors. ...MPEG-2 serial or parallel data, packet sync and a data clock to the DOCSIS **MAC** .

The downstream demodulator I 00 also includes two AGC loops which provide control for both...

...attenuation in steps on the order of about 0.4 dB.
1 5 3. DOCSIS **MAC**
The DOCSIS media access controller (**MAC**), includes baseline privacy encryption and decryption, transmission convergence support, a TDM/TDMA framer, and a...

...The TDM/TDMA preferably handles time synchronization with the cable modem termination system, upstream MAP **decoding** , bandwidth request generation and contention resolution. The DOCSIS **MAC** may be divided into four major functions, downstream functions, upstream functions, DMA interface and miscellaneous control. The downstream functions of the DOCSIS **MAC** include receiving MPEG frames I 00(b) from the downstream demodulator, extracting the DOCSIS **MAC** frames from the MPEG frames,

24/3,K/1 (Item 1 from file: 348)
DIALOG(R)File 348:EUROPEAN PATENTS

00983606
Pipeline decoding system
Pipeline-System zur Dekodierung
Systeme pipeline de decodage
PATENT ASSIGNEE:
Discovision Associates, (260275), 2355 Main Street, Suite 200, Irvine, CA 92614, (US), (applicant designated states: AT;BE;CH;DE;FR;GB;IE;IT;LI;NL)
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Robbins, William Philip, 19 Springhill, CAM, Gloucestershire GL11 5PE, (GB)
Finch, Helen Rosemary, Tyley, Coombe, Wotton-Under-Edge, Gloucestershire GL12 7ND, (GB)
Boyd, Kevin James, 21 Lancashire Road, Bristol BS7 9DL, (GB)
LEGAL REPRESENTATIVE:
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PATENT (CC, No, Kind, Date): EP 891089 A1 990113 (Basic)
APPLICATION (CC, No, Date): EP 98202149 950228;
PRIORITY (CC, No, Date): GB 9405914 940324
DESIGNATED STATES: AT; BE; CH; DE; FR; GB; IE; IT; LI; NL
RELATED PARENT NUMBER(S) - PN (AN):
EP 674443 (EP 953013018)
INTERNATIONAL PATENT CLASS: H04N-007/24; G06F-019/00; G06F-013/00; G06F-009/38;
ABSTRACT WORD COUNT: 165

LANGUAGE (Publication,Procedural,Application): English; English; English
FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	9902	165
SPEC A	(English)	9902	127403
Total word count - document A			127568
Total word count - document B			0
Total word count - documents A + B			127568

...SPECIFICATION the contents of the detect shift register has been identified-as a start code, its **contents** must be **removed** from the two wire interface to ensure that no further processing takes place using these...In some applications, however, it may be appropriate to detect the FLUSH arriving at the **output** of the decoder chip-set as this will indicate the end of the current video sequence. For example, the display could freeze on the last picture **output** .
When the Start Code Detector stops, there may be data from the "old" video sequence...

24/3,K/2 (Item 2 from file: 348)
DIALOG(R)File 348:EUROPEAN PATENTS

00975324

Pipeline decoding system

Pipeline-System zur Dekodierung

Systeme pipeline de decodage

PATENT ASSIGNEE:
Discovision Associates, (260275), 2355 Main Street, Suite 200, Irvine, CA 92614, (US), (Proprietor designated states: all)

INVENTOR:
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Sotheran, Martin William, The Ridings, Wick Lane, Stinchcombe, Dursley, Gloucestershire GL11 6BD, (GB)
Robbins, William Philip, 19 Springhill, Cam, Gloucestershire GL11 5PE, (GB)
Finch, Helen Rosemary, Tyley, Coombe, Wotton-Under-Edge, Gloucesterhire GL12 7ND, (GB)
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PATENT (CC, No, Kind, Date): EP 884910 A1 981216 (Basic)
EP 884910 B1 010509

APPLICATION (CC, No, Date): EP 98202132 950228;

PRIORITY (CC, No, Date): GB 9405914 940324

DESIGNATED STATES: AT; BE; CH; DE; FR; GB; IE; IT; LI; NL

RELATED PARENT NUMBER(S) - PN (AN):
EP 674443 (EP 95301301)

INTERNATIONAL PATENT CLASS: H04N-007/24; G06F-013/00; G06F-009/38

ABSTRACT WORD COUNT: 104

NOTE:
Figure number on first page: 76

LANGUAGE (Publication,Procedural,Application): English; English; English

FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	199851	498
CLAIMS B	(English)	200119	330
CLAIMS B	(German)	200119	308
CLAIMS B	(French)	200119	382
SPEC A	(English)	199851	126705
SPEC B	(English)	200119	122739
Total word count - document A			127222
Total word count - document B			123759
Total word count - documents A + B			250981

...SPECIFICATION the contents of the detect shift register has been identified as a start code, its **contents** must be **removed** from the two wire interface to ensure that no further processing takes place using these...selected configures the relationship between start code value and the Token generated. This relationship is **shown** in Table A.11.4.

A.11.3.3 Extended features of the coding standards...In some applications, however, it may be appropriate to detect the FLUSH arriving at the **output** of the decoder chip-set as this will indicate the end of the current video sequence. For example, the display could freeze on the last picture **output** .

When the Start Code Detector stops, there may be data from the "old" video sequence...

24/3,K/3 (Item 3 from file: 348)
DIALOG(R)File 348:EUROPEAN PATENTS

00711605
Reconfigurable data processing stage
Rekonfigurierbare Datenverarbeitungsstufe
Etage d'operation de donnees reconfigurable
PATENT ASSIGNEE:
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INVENTOR:
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Robbins, William Philip, 19 Springhill, Cam, Gloucestershire, GL11 5PE, (GB)
LEGAL REPRESENTATIVE:
Vuillermoz, Bruno et al (72791), Cabinet Laurent & Charras B.P. 32 20, rue Louis Chirpaz, 69131 Ecully Cedex, (FR)
PATENT (CC, No, Kind, Date): EP 674446 A2 950927 (Basic)
EP 674446 A3 960814
EP 674446 B1 010801
APPLICATION (CC, No, Date): EP 95301300 950228;
PRIORITY (CC, No, Date): GB 9405914 940324
DESIGNATED STATES: AT; BE; CH; DE; FR; GB; IE; IT; LI; NL
INTERNATIONAL PATENT CLASS: H04N-007/24; G06F-013/00; G06F-009/38
ABSTRACT WORD COUNT: 144
NOTE:
Figure number on first page: 10

LANGUAGE (Publication,Procedural,Application): English; English; English
FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	EPAB95	2475
CLAIMS B	(English)	200131	1079
CLAIMS B	(German)	200131	1072
CLAIMS B	(French)	200131	1186
SPEC A	(English)	EPAB95	125236
SPEC B	(English)	200131	121335
Total word count - document A			127738
Total word count - document B			124672
Total word count - documents A + B			252410

...SPECIFICATION the contents of the detect shift register has been identified as a start code, its **contents** must be **removed** from the two wire interface to ensure that no further processing takes place using these...decoded.

A.16.2 Token sequence
The JPEG markers codes are converted to an analogous **MPEG** named Token by the Start Code Detector (see Table A.11.4, see Fig. 82...

24/3,K/4 (Item 1 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT

01066495 **Image available**

METHOD AND APPARATUS FOR BROWSING USING MULTIPLE COORDINATED DEVICE

PROCEDE ET DISPOSITIF D'EXPLORATION AU MOYEN DE PLUSIEURS DISPOSITIFS COORDONNES

Patent Applicant/Inventor:
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Legal Representative:
HANCHUK Walter G (agent), Morgan & Finnegan, L.L.P., 345 Park Avenue, New York, NY 10154, US,

Patent and Priority Information (Country, Number, Date):
Patent: WO 200396669 A2-A3 20031120 (WO 0396669)
Application: WO 2003US14449 20030508 (PCT/WO US03014449)
Priority Application: US 2002379635 20020510; US 2002408605 20020906; US 2003455433 20030317
Designated States:
(Protection type is "patent" unless otherwise stated - for applications prior to 2004)
AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NI NO NZ OM PH PL PT RO RU SC SD SE SG SK SL TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW
(EP) AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LU MC NL PT RO SE SI SK TR
(OA) BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG
(AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZM ZW
(EA) AM AZ BY KG KZ MD RU TJ TM
Publication Language: English
Filing Language: English
Fulltext Word Count: 116200

Fulltext Availability:
Detailed Description

Detailed Description
... otherwise or clear in context, "television" may be used as broadly inclusive of any video **content** or resource, including all forms of TV distribution, as well as movies, however distributed, live...the like, but may also be coded as object data, including formats provided for in **MPEG**
[00791 "Audio data" refers to all stored forms of sound, whether part of a video...
...refers to the element or elements of a storage system that include actual fixed or **removable** "storage media" capable of retaining **content** in an electromagnetic or other machine-readable forrn using any
29
technology, including electronic, magnetic...
?

```
? show files; ds; save temp; logoff hold
File   9:Business & Industry(R) Jul/1994-2005/Oct 31
         (c) 2005  The Gale Group
File  15:ABI/Inform(R) 1971-2005/Oct 31
         (c) 2005 ProQuest Info&Learning
File  16:Gale Group PROMT(R) 1990-2005/Oct 31
         (c) 2005 The Gale Group
File  20:Dialog Global Reporter 1997-2005/Nov 01
         (c) 2005 Dialog
File  47:Gale Group Magazine DB(TM) 1959-2005/Nov 01
         (c) 2005 The Gale group
File  75:TGG Management Contents(R) 86-2005/Oct W4
         (c) 2005 The Gale Group
File  80:TGG Aerospace/Def.Mkts(R) 1982-2005/Oct 31
         (c) 2005 The Gale Group
File  88:Gale Group Business A.R.T.S. 1976-2005/Nov 01
         (c) 2005 The Gale Group
File  98:General Sci Abs/Full-Text 1984-2004/Dec
         (c) 2005 The HW Wilson Co.
File 112:UBM Industry News 1998-2004/Jan 27
         (c) 2004 United Business Media
File 141:Readers Guide 1983-2004/Dec
         (c) 2005 The HW Wilson Co
File 148:Gale Group Trade & Industry DB 1976-2005/Nov 01
         (c)2005 The Gale Group
File 160:Gale Group PROMT(R) 1972-1989
         (c) 1999 The Gale Group
File 275:Gale Group Computer DB(TM) 1983-2005/Oct 31
         (c) 2005 The Gale Group
File 264:DIALOG Defense Newsletters 1989-2005/Oct 31
         (c) 2005 Dialog
File 484:Periodical Abs Plustext 1986-2005/Oct W4
         (c) 2005 ProQuest
File 553:Wilson Bus. Abs. FullText 1982-2004/Dec
         (c) 2005 The HW Wilson Co
File 570:Gale Group MARS(R) 1984-2005/Oct 31
         (c) 2005 The Gale Group
File 608:KR/T Bus.News. 1992-2005/Nov 01
         (c)2005 Knight Ridder/Tribune Bus News
File 620:EIU:Viewswire 2005/Oct 19
         (c) 2005 Economist Intelligence Unit
File 613:PR Newswire 1999-2005/Nov 01
         (c) 2005 PR Newswire Association Inc
File 621:Gale Group New Prod.Annou.(R) 1985-2005/Nov 01
         (c) 2005 The Gale Group
File 623:Business Week 1985-2005/Oct 27
         (c) 2005 The McGraw-Hill Companies Inc
File 624:McGraw-Hill Publications 1985-2005/Oct 31
         (c) 2005 McGraw-Hill Co. Inc
File 634:San Jose Mercury  Jun 1985-2005/Oct 31
         (c) 2005 San Jose Mercury News
File 635:Business Dateline(R) 1985-2005/Oct 29
         (c) 2005 ProQuest Info&Learning
File 636:Gale Group Newsletter DB(TM) 1987-2005/Oct 31
         (c) 2005 The Gale Group
File 647:CMP  Computer Fulltext 1988-2005/Oct W3
         (c) 2005 CMP Media, LLC
File 696:DIALOG Telecom. Newsletters 1995-2005/Oct 31
         (c) 2005 Dialog
File 674:Computer News Fulltext 1989-2005/Oct W2
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File 810:Business Wire 1986-1999/Feb 28

File 813:PR Newswire 1987-1999/Apr 30

File 587:Jane`s Defense&Aerospace 2005/Oct W4

Set	Items	Description
S1	2934	(ENCAPSULAT? OR EN()CAPSULAT? OR CAPSULAT? OR COVER? OR CAS? OR EMBED? OR ENCLOS??? OR ENCAS? OR SEAL?)(7N)(MPEG OR MOVING()PICTURE? ?()DISPLAY()GROUP? ?)
S2	19560	DOCSIS OR DATA()OVER()CABLE()SERVICE()INTERFAC? ?()SPECIFICATION? ?
S3	24568	FORMAT?(3N)MESSAGE? ?
S4	29028	(STRIP? OR REMOV? OR UNCOVER? OR TAK?()OFF OR WITHDRAW OR EXTRACT?)(7N)CONTENT?
S5	35	S4(7N)PACKET? ?
S6	620192	MAC OR (MEDIUM OR MEDIA)()ACESS()CONTROL
S7	24620	ENCOD?(5N)(MPEG OR MOVING()PICTURE? ?()DISPLAY()GROUP? ?)
S8	205299	DECOD?
S9	92487	(DISPLAY? OR SHOW? OR VIEW?)(5N)(SIGNAL OR OUTPUT)
S10	1	(MPEG OR MOVING()PICTURE? ?()DISPLAY()GROUP? ?)(3W)(ENCAPSULAT? OR EN()CAPSULAT? OR CAPSULAT? OR COVER? OR CAS? OR EMBED? OR ENCLOS??? OR ENCAS? OR SEAL?)(3W)(DOCSIS OR DATA()OVER()CABLE()SERVICE()INTERFAC? ?()SPECIFICATION? ?)
S11	146	AU=(CRAVEN, J? OR CRAVEN J? OR BUGAJSKI, M? OR BUGAJSKI M?)
S12	0	S11 AND S1
S13	0	S11 AND S2
S14	15	S1(S)S2
S15	7	RD (unique items)
S16	6	S15 NOT S10
S17	1365	S8(S)S9
S18	30	S17(S)S7
S19	21	RD (unique items)
S20	20	S19 NOT PY>2003
S21	20	S20 NOT (S16 OR S10)
S22	43	S17(S)S6
S23	43	S22 NOT (S21 OR S16 OR S10)
S24	21	RD (unique items)
S25	21	S24 NOT PY>2003
S26	0	S25(S)S1
S27	0	S25(S)S2
S28	24	RD S5 (unique items)
S29	14	S28 NOT PY>2003
S30	14	S29 NOT (S21 OR S16 OR S10)

10/3,K/1 (Item 1 from file: 148)
DIALOG(R)File 148:Gale Group Trade & Industry DB

10173718 SUPPLIER NUMBER: 20512622 (USE FORMAT 7 OR 9 FOR FULL TEXT)
MCNS/DOCSIS MAC clears a path for the cable-modem invasion. (multimedia cable networking systems/Data-Over-Cable-Service Interface Specification) (Cover Story)
Goldberg, Lee
Electronic Design, v45, n27, p69(4)
Dec 1, 1997
DOCUMENT TYPE: Cover Story ISSN: 0013-4872 LANGUAGE: English
RECORD TYPE: Fulltext; Abstract
WORD COUNT: 2177 LINE COUNT: 00179

... essential for today's applications, the standard's developers were looking toward the future. Today, **MPEG encapsulation** provides **DOCSIS** with a reliable, well-defined method of setting up multiple channels within a single data...
?

16/3,K/1 (Item 1 from file: 9)
DIALOG(R)File 9:Business & Industry(R)

02036114 Supplier Number: 25535694 (USE FORMAT 7 OR 9 FOR FULLTEXT)
Time Warner keeps Exploring
(Time Warner to order 500,000 additional Explorer digital set-top boxes from Scientific-Atlanta; the cable operator predicts that at least 800,000 of its subscribers will have digital set-top boxes in place by the end of 2000)
Broadcasting & Cable, v 129, n 52, p 54
December 20, 1999
DOCUMENT TYPE: Journal ISSN: 0007-2028 (United States)
LANGUAGE: English RECORD TYPE: Fulltext
WORD COUNT: 308

(USE FORMAT 7 OR 9 FOR FULLTEXT)

TEXT:
...VOD, other services are still in the planning stages. The boxes won't include a **DOCSIS** cable modem, says Chiddix, since including an integral modem "isn't justified yet." The boxes can receive high-speed IP data **encapsulated** in **MPEG** -2 streams, however.

The boxes also won't include a hard disk to allow TiVo...

16/3,K/2 (Item 1 from file: 15)
DIALOG(R)File 15:ABI/Inform(R)

01960090 46994237
Integrated access points: The next step for MSOs
Yassini, Rouzbeh; Kostka, William
Telecommunications v33n12 PP: 33-34 Dec 1999
ISSN: 0278-4831 JRNL CODE: TEC
WORD COUNT: 1404

...TEXT: of bandwidth efficiency. On today's cable systems, both broadcast video and DOCKS data are **embedded** in **MPEG** for downstream transmission. Broadcast **MPEG** was designed specifically for cable networks and seems to do a pretty good job. Should...

...running on the raw transport stream be embedded into IP so it can run in **DOCSIS** , which then runs on a native stream? The big question is whether that's a...

16/3,K/3 (Item 1 from file: 16)
DIALOG(R)File 16:Gale Group PROMT(R)

11258331 Supplier Number: 117868984 (USE FORMAT 7 FOR FULLTEXT)
Casa Systems Announces the Immediate Availability of C2000 Digital Cable Termination System.
Business Wire, p5926
June 8, 2004
Language: English Record Type: Fulltext

Document Type: Newswire; Trade
Word Count: 605

... movie download and interactive gaming, the C2000 DCTS also supports switched digital broadcast in either **MPEG** or IP format through multicast.
Casa Systems will exhibit the C2000 DCTS at SCTE 2004 in Booth 2318.
About Casa Systems...

16/3,K/4 (Item 2 from file: 16)
DIALOG(R)File 16:Gale Group PROMT(R)

07014867 Supplier Number: 58736259 (USE FORMAT 7 FOR FULLTEXT)
Time Warner keeps Exploring.(Brief Article)(Statistical Data Included)
Dickson, Glen
Broadcasting & Cable, v129, n52, p54
Dec 20, 1999
Language: English Record Type: Fulltext
Article Type: Brief Article; Statistical Data Included
Document Type: Magazine/Journal; Trade
Word Count: 314

... VOD, other services are still in the planning stages. The boxes won't include a **DOCSIS** cable modem, says Chiddix since including an integral modem "isn't justified yet." The boxes car receive high-speed IP data **encapsulated** in **MPEG** -2 streams, however.
The boxes also won't include a hard disk to allow TiVo...

16/3,K/5 (Item 1 from file: 20)
DIALOG(R)File 20:Dialog Global Reporter

35390134 (USE FORMAT 7 OR 9 FOR FULLTEXT)
Event Brief of Q1 2004 ARRIS Group, Inc. Earnings Conference Call - Part 2
FAIR DISCLOSURE WIRE
April 22, 2004
JOURNAL CODE: WFDW LANGUAGE: English RECORD TYPE: FULLTEXT
WORD COUNT: 3978

(USE FORMAT 7 OR 9 FOR FULLTEXT)

... valid MTA customer, but it was my understanding they were primarily looking at a non- **DOCSIS** space implementation of VoIP. How big a piece of their footprint do you think you...

16/3,K/6 (Item 1 from file: 696)
DIALOG(R)File 696:DIALOG Telecom. Newsletters

00870220
Tandberg Dilutes Microsoft's IPTV Scheme
TelecomWeb News Digest
April 21, 2005 ISSUE: [Copyright 2005 Access Intelligence, LLC. All rights reserved.] DOCUMENT TYPE: NEWSLETTER
PUBLISHER: PHILLIPS BUSINESS INFORMATION

LANGUAGE: ENGLISH WORD COUNT: 5314 RECORD TYPE: FULLTEXT

TEXT:
...entry into the broadband TV market to
work with either its own video Codecs or **MPEG** -4 - just in **case** . That's turned
out to be a smart move as various customers, in addition to...

...be
transmitted in bandwidth-limited pipes and more customers to be reached in DSL
and **DOCSIS** systems," says Matthews.

...
?

21/3,K/1 (Item 1 from file: 9)
DIALOG(R)File 9:Business & Industry(R)

01384722 Supplier Number: 24054151 (USE FORMAT 7 OR 9 FOR FULLTEXT)
Startup's DSP cores take VLIW route to programmability
(Billions of Operations Per Second Inc to debut its scalable signal-processing architecture)
Electronic Engineering Times, p 01
October 13, 1997
DOCUMENT TYPE: Journal ISSN: 0192-1541 (United States)
LANGUAGE: English RECORD TYPE: Fulltext
WORD COUNT: 766

ABSTRACT:
Startup Billions of Operations Per Second Inc. (BOPS) will give the first public **view** of its scalable 1signal -processing architecture at the Microprocessor Forum this week in San Jose, Calif. The company aims...

...that will give system makers a fully programmable alternative for such normally hardwired functions as **MPEG** -2 **encoding** , **MPEG** -4 **decoding** and 3-D image processing, at an affordable die size. Its unique, semi-VLIW architecture...

TEXT:
...N.C. - Startup Billions of Operations Per Second Inc. (BOPS) will give the first public **view** of its scalable **signal** -processing architecture at the Microprocessor Forum this week in San Jose, Calif. The company aims...

...that will give system makers a fully programmable alternative for such normally hardwired functions as **MPEG** -2 **encoding** , **MPEG** -4 **decoding** and 3-D image processing, at an affordable die size. Its unique, semi-VLIW architecture...

21/3,K/2 (Item 2 from file: 9)
DIALOG(R)File 9:Business & Industry(R)

00982456 Supplier Number: 23515512 (USE FORMAT 7 OR 9 FOR FULLTEXT)
Deutsche Telekom Launches ATM Service
(Deutsche Telekom launches new ATM-broadcast service through Intelsat; Comsat also to offer ATM services via Intelsat)
Cable & Satellite Express, n 9, p 7
May 09, 1996
DOCUMENT TYPE: Journal (United Kingdom)
LANGUAGE: English RECORD TYPE: Fulltext
WORD COUNT: 359

TEXT:
...The first trial proved successful, with programming from public broadcaster ZDF and with a television **signal** from a live **show** in Baden-Baden.

The ZDF- **signal** was encoded by a Thomson unit, while the live **show** **signal** was **encoded** in **MPEG** -2. The signal was uplinked by Deutsche Telekom earth station in Usingen near Frankfurt, with downlink via SNG and **decoded** by Thomson/MPEG-2 equipment.

. . . .

21/3,K/3 (Item 1 from file: 16)
DIALOG(R)File 16:Gale Group PROMT(R)
(c) 2005 The Gale Group. All rts. reserv.

06380477 Supplier Number: 54769275 (USE FORMAT 7 FOR FULLTEXT)
Path 1 Discloses Results of its Video Over IP Demo at NetWorld+Interop.
Business Wire, p0002
June 2, 1999
Language: English Record Type: Fulltext
Document Type: Newswire; Trade
Word Count: 904

... 704x480 pixels.
The DVD video utilized the output from a DVD player coupled to an **MPEG** -2 **Encoder** that converted the NTSC S-video to full D1 resolution MPEG-2 data packets. The...

...data stream passed through the TrueCircuit network to a PC operating with an MPEG-2 **decoder** board. The video **output** of the board was then **shown** on a wide format flat-screen monitor.
The CD quality audio came from a CD...

21/3,K/4 (Item 2 from file: 16)
DIALOG(R)File 16:Gale Group PROMT(R)
(c) 2005 The Gale Group. All rts. reserv.

05283223 Supplier Number: 48046933 (USE FORMAT 7 FOR FULLTEXT)
Startup's DSP cores take VLIW route to programmability
Wilson, Ron; Bindra, Ashok
Electronic Engineering Times, p1
Oct 13, 1997
Language: English Record Type: Fulltext
Document Type: Magazine/Journal; Trade
Word Count: 781

(USE FORMAT 7 FOR FULLTEXT)
TEXT:
...N.C. -- Startup Billions of Operations Per Second Inc. (BOPS) will give the first public **view** of its scalable **signal** -processing architecture at the Microprocessor Forum this week in San Jose, Calif. The company aims...

...that will give system makers a fully programmable alternative for such normally hardwired functions as **MPEG** -2 **encoding** , **MPEG** -4 **decoding** and 3-D image processing, at an affordable die size. Its unique, semi-VLIW architecture...

21/3,K/5 (Item 3 from file: 16)
DIALOG(R)File 16:Gale Group PROMT(R)
(c) 2005 The Gale Group. All rts. reserv.

04577797 Supplier Number: 46729495 (USE FORMAT 7 FOR FULLTEXT)
VLSI Unveils VISTA Architecture - a Complete System-Level Silicon Solution

for the Exploding Digital Set-Top Box Market; Company Delivers on Its Roadmap, Providing All Necessary Technologies, Devices and Software to Enable a Super-Integrated, Single-Chip Set-Top Box.
Business Wire, p09231038
Sept 23, 1996
Language: English Record Type: Fulltext
Document Type: Newswire; Trade
Word Count: 1412

... having to modify their hardware design.
VISTA AV includes the VES6000 MPEG 2 Audio/Video **Decoder** and VES7000 Video **Encoder** devices, providing full **MPEG** 2 video decompression; MPEG 1 Musicam audio decompression; on-screen **display** (OSD) support; and full video **signal** encoding compliant to both the NTSC and PAL television standards.
VISTA API

21/3,K/6 (Item 1 from file: 148)
DIALOG(R)File 148:Gale Group Trade & Industry DB
(c)2005 The Gale Group. All rts. reserv.

14598404 SUPPLIER NUMBER: 86389929 (USE FORMAT 7 OR 9 FOR FULL TEXT)
Video server. (Marketplace).(advertisement)
Security Management, 46, 5, 116(1)
May, 2002
ISSN: 0145-9406 LANGUAGE: English RECORD TYPE: Fulltext
WORD COUNT: 167 LINE COUNT: 00016

TEXT:
...version offers simultaneous transmission, recording, and backup, and it can save bandwidth by recording the **MPEG** -2 format signal locally, while **encoding** and transmitting the images in **MPEG** -4 format to remote users.

21/3,K/7 (Item 2 from file: 148)
DIALOG(R)File 148:Gale Group Trade & Industry DB
(c)2005 The Gale Group. All rts. reserv.

13151730 SUPPLIER NUMBER: 70926403 (USE FORMAT 7 OR 9 FOR FULL TEXT)
A/V integration in a wire, no "fire" required.(Technology Information)
Dipert, Brian
EDN, 46, 3, 20
Feb 1, 2001
ISSN: 0012-7515 LANGUAGE: English RECORD TYPE: Fulltext
WORD COUNT: 687 LINE COUNT: 00058

... player designer desires to superimpose a user-interface display on a decoded DTV signal or **MPEG** - **encoded** movie.
The PC industry determined DVI's 165 million-pixel/sec single-channel bandwidth, which...

21/3,K/8 (Item 3 from file: 148)
DIALOG(R)File 148:Gale Group Trade & Industry DB
(c)2005 The Gale Group. All rts. reserv.

11474626 SUPPLIER NUMBER: 57387095 (USE FORMAT 7 OR 9 FOR FULL TEXT)
Store-and-forward for video: like e-mailing tapes over nets.
Hindus, Leonard A.
Advanced Imaging, 14, 9, 50(2)
Sept, 1999
ISSN: 1042-0711 LANGUAGE: English RECORD TYPE: Fulltext
WORD COUNT: 1509 LINE COUNT: 00121

... end, the process is reversed. The signal is decoded, uncompressed and stored on disk for **viewing** and **output** in the desired format. The system includes a 625/525-line video conversion for universal...

21/3,K/9 (Item 4 from file: 148)
DIALOG(R)File 148:Gale Group Trade & Industry DB
(c)2005 The Gale Group. All rts. reserv.

09900583 SUPPLIER NUMBER: 20041293
The broad picture. (test and measurement equipment in broadcasting) (Technology Special: Test and Measurement)
Josifovska, Svetlana
Electronics Weekly, n1830, p28(1)
Oct 1, 1997
ISSN: 0013-5224 LANGUAGE: English RECORD TYPE: Abstract

...ABSTRACT: Snell & Wilcox exhibited its MVA100 video analyser for MPEG-2 encoding and decoding. Hewlett-Packard **displayed** its VSB/QAM **signal** analyser which offers comprehensive test capabilities.

21/3,K/10 (Item 5 from file: 148)
DIALOG(R)File 148:Gale Group Trade & Industry DB
(c)2005 The Gale Group. All rts. reserv.

09802061 SUPPLIER NUMBER: 19893027 (USE FORMAT 7 OR 9 FOR FULL TEXT)
Startup's DSP cores take VLIW route to programmability. (very-long-instruction-word) (Billions of Operations Per Second's scalable signal-processing architecture) (Company Business and Marketing)
Bindra, Ashok; Wilson, Ron
Electronic Engineering Times, n975, p1(2)
Oct 13, 1997
ISSN: 0192-1541 LANGUAGE: English RECORD TYPE: Fulltext; Abstract
WORD COUNT: 870 LINE COUNT: 00073

TEXT:
...a fully programmable alternative for such normally hardwired functions as MPEG-2 encoding, MPEG-4 **decoding** and 3-D image processing, at an affordable die size. Its unique, semi-VLIW architecture...

21/3,K/11 (Item 6 from file: 148)
DIALOG(R)File 148:Gale Group Trade & Industry DB
(c)2005 The Gale Group. All rts. reserv.

06418656 SUPPLIER NUMBER: 13708675 (USE FORMAT 7 OR 9 FOR FULL TEXT)
DBS System: Thomson Consumer Electronics selects California-based C-Cube Microsystems as compression circuit vendor. (direct broadcast satellite)

EDGE, on & about AT&T, v8, n243, p14(1)
March 22, 1993
LANGUAGE: ENGLISH RECORD TYPE: FULLTEXT
WORD COUNT: 495 LINE COUNT: 00041

... encode standard digital video into the MPEG format, while decoders decompress the MPEG data and **output** digital video for **viewing** . The encoder ICs will be used in the satellite uplink equipment being supplied by CLI of San Jose, CA. **Decoders** ICs will be incorporated into the DSS home receivers.
"I'm proud that Thomson has...

21/3,K/12 (Item 1 from file: 613)
DIALOG(R)File 613:PR Newswire

01043580 20030925SFTH070 (USE FORMAT 7 FOR FULLTEXT)
NEC Delivers System LSI for BS/CS/Terrestrial Digital
PR Newswire
Thursday, September 25, 2003 14:49 EDT
JOURNAL CODE: PR LANGUAGE: ENGLISH RECORD TYPE: FULLTEXT
DOCUMENT TYPE: NEWSWIRE
WORD COUNT: 1,114

TEXT:
...processing of digital broadcast signals, such as
extraction of content from the broadcast signal, MPEG **decoding** of digital audio/video signals, control and display of still pictures and video, supports
applications...

...degrees CS broadcast and terrestrial digital broadcast
in Japan.
The LSI is capable of simultaneously **decoding** multiple standard definition
video signals (hereafter called MPEG-2 MP@ML) to support legacy TV standards,
but more importantly, it can **decode** the Hi-Vision standard (hereafter called
MPEG-2 MP@HL) required for Hi-Vision picture quality. This flexible **decoding**
allows a variety of combinations, such as simultaneous **decoding** of dual MPEG-2
MP@HL Videos, one MPEG-2 MP@HL Video and three...

...the signal's pixel configuration needs (down-conversion).
Moreover, thanks to the LSI's multi- **decode** support, it is possible to record a
broadcast program while viewing another program and simultaneously...

...second
video output independent from the main video output allows a stable second NTSC video **output** independent from the main video **display** method.
NEC Electronics released their first video **decoder** LSI in March 1998, and
the (micron)PD61130 family of **decoder** LSIs for set-top boxes (STB) in March

2001. Major broadcasters around the world have been adopted these products for
standard **decoders** and PVRs.
NEC Electronics also announced the (micron)PD61110 family of MP@ML **decoder**
LSIs for low-cost STBs on September 8 this year and launched the (micron)PD61170...

...will be one of
the first in the industry to realize a full lineup of **MPEG** -2 **decoder** and
encoder products for equipment ranging from low-cost to high-image-quality
decoders , as well as recording-media-compatible products.
NEC Electronics will exhibit and demonstrate its latest...

21/3,K/13 (Item 2 from file: 613)
DIALOG(R)File 613:PR Newswire

00662433 20011023DATU017 (USE FORMAT 7 FOR FULLTEXT)
TI's Programmable DSP Solution: Improved Performance
PR Newswire
Tuesday, October 23, 2001 09:56 EDT
JOURNAL CODE: PR LANGUAGE: ENGLISH RECORD TYPE: FULLTEXT
DOCUMENT TYPE: NEWSWIRE
WORD COUNT: 834

TEXT:
...of still images at up to
3-megapixels in less than a second, and it **encodes** and **decodes** CIF resolution
(352x288) **MPEG** -4 I+P frame video at 20 frames per second (fps). Additional
power-down modes...

...upcoming digital camera products."
Additional enhanced features of the DSC25 include a digital liquid crystal
display (LCD) interface and S-video **output** . An enhanced on screen **display**
(OSD) provides more flexible, simplified graphical user interface (GUI)
development for system designers with dedicated...

21/3,K/14 (Item 1 from file: 636)
DIALOG(R)File 636:Gale Group Newsletter DB(TM)

04690045 Supplier Number: 62751425 (USE FORMAT 7 FOR FULLTEXT)
Clearing the fog.
Kairoff, Josh
Sound & Video Contractor, pNA
May, 2000
Language: English Record Type: Fulltext
Document Type: Magazine/Journal; Trade
Word Count: 2224

... NAB this year produced output that would be acceptable to all but the most critical **viewer** .

The **MPEG** -2 **encoders** ' **output** can be set to any number of established standards. For DTV in the United States...

...particular methods of storage or distribution can dictate the format and bit rate from the **decoder** . It should be noted that

21/3,K/15 (Item 2 from file: 636)
DIALOG(R)File 636:Gale Group Newsletter DB(TM)

04043495 Supplier Number: 53413374 (USE FORMAT 7 FOR FULLTEXT)
STB: STB announces DesktopVCR MPEG 2 encoder/decoder at Fall Comdex '98.
M2 Presswire, pNA
Nov 17, 1998
Language: English Record Type: Fulltext
Document Type: Newswire; Trade
Word Count: 971

(USE FORMAT 7 FOR FULLTEXT)
TEXT:
M2 PRESSWIRE-17 November 1998-STB: STB announces DesktopVCR **MPEG** 2 **encoder** / **decoder** at Fall Comdex '98 (C)1994-98 M2 COMMUNICATIONS LTD RDATE:151198 -- STB's DesktopVCR...

...control over PC based digital video recording and editing, and acts as a hardware DVD **decoder** . The DesktopVCR combines an onboard TV tuner and DVD player with the ability to support...

...video imported into the PC with professional quality results. The DesktopVCR has the ability to **decode** two simultaneous MPEG 2 streams, adding to the number of special effects that can be...
...be saved as a single stream and played back using the DesktopVCR's MPEG 2 **decoder** . STB's VisualReality Software The DesktopVCR ships with STB's revolutionary new VisualReality software application that provides today's most active and convenient control for **displaying** a television **signal** on the PC screen. VisualReality lets the user adjust all major television controls - from channel...

...Semiconductor Systems' Digital Infotainment technology found in the Fusion family of video and broadcast audio **decoders** . Integrating video and broadcast audio capture into a single chip, the Rockwell Bt878 provides complete consumer entertainment solutions with support for TV and FM radio **decoding** in stereo to STB's DesktopVCR. "We're beginning to see leading vendors of TV...

...products add new functionality to traditional solutions based on our Fusion family of PCI video **decoders** ," said John Graham, Director of Marketing, Digital Infotainment Division at Rockwell, which is scheduled to ...

21/3,K/16 (Item 3 from file: 636)
DIALOG(R)File 636:Gale Group Newsletter DB(TM)

02445366 Supplier Number: 44882273 (USE FORMAT 7 FOR FULLTEXT)
TOOLS & TECHNOLOGY: IBM Introduces MPEG-2 Decoder Device
Multimedia & Videodisc Monitor, v12, n8, pN/A
August, 1994
Language: English Record Type: Fulltext
Document Type: Newsletter; Trade
Word Count: 238

The **decoder** device includes an error concealment mechanism, which enables the **decoder** to maximize the use of available good data; multiple DRAM configurations for storing coded data, partially **decoded** pictures, and reference pictures used for motion compensation; a sophisticated **output** filtering and **display** control to handle aspect ratio changes; image expansion capabilities in both horizontal and vertical directions; and direct connection to standard digital NTSC/PAL **encoders** .

Samples of the **MPEG** -2 decoder device using IBM's 0.8 micron CMOS technology are available now. Pricing...

21/3,K/17 (Item 1 from file: 647)
DIALOG(R)File 647:CMP Computer Fulltext

01141289 CMP ACCESSION NUMBER: EET19971013S0003
Startup's DSP cores take VLIW route to programmability
Ashok Bindra and Ron Wilson
ELECTRONIC ENGINEERING TIMES, 1997, n 975, PG01
PUBLICATION DATE: 971013
JOURNAL CODE: EET LANGUAGE: English
RECORD TYPE: Fulltext
SECTION HEADING: News
WORD COUNT: 793

TEXT:
... N.C. - Startup Billions of Operations Per Second Inc. (BOPS) will give the first public **view** of its scalable **signal** - processing architecture at the Microprocessor Forum this week in San Jose, Calif. The company aims...

...that will give system makers a fully programmable alternative for such normally hardwired functions as **MPEG** -2 **encoding** , **MPEG** -4 **decoding** and 3 -D image processing, at an affordable die size. Its unique, semi-VLIW architecture...

21/3,K/18 (Item 1 from file: 696)
DIALOG(R)File 696:DIALOG Telecom. Newsletters

00677390
HDTV UPGRADE SEEN
TELEVISION DIGEST
June 21, 1999 DOCUMENT TYPE: NEWSLETTER
PUBLISHER: WARREN PUBLISHING INC.
LANGUAGE: ENGLISH WORD COUNT: 558 RECORD TYPE: FULLTEXT

TEXT:
...board member and company's highest-ranking
digital R&D executive. Purpose of higher-definition **signal** would
be for public **display** on screens larger than consumer TVs,
including filmless digital cinemas in future, he said. Comments...

...from "enhancement
layer" for 1080-line progressively scanned 60-fps picture, then
sends it through **MPEG** -2 **encoder** as "basic" channel in compliance
with ATSC standard. Additive data for "enhancement" channel are
handled...
...Aug. launch, and
among owners of DTV-ready sets, 10% also have purchased set-top
decoder , Panasonic U.S. executive Jeff Cove said. Projection
models account for 83% of purchases, rest ...board member and company's
highest-ranking
digital R&D executive. Purpose of higher-definition **signal** would
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models account for 83% of purchases, rest...

21/3,K/19 (Item 2 from file: 696)
DIALOG(R)File 696:DIALOG Telecom. Newsletters

00677302
MATSUSHITA SEES HDTV UPGRADE FOR 'SPECIAL' USES
AUDIO WEEK
June 21, 1999 DOCUMENT TYPE: NEWSLETTER
PUBLISHER: WARREN PUBLISHING INC.
LANGUAGE: ENGLISH WORD COUNT: 556 RECORD TYPE: FULLTEXT

TEXT:
...board member and company's highest-ranking
digital R&D executive. Purpose of higher-definition **signal** would
be for public **display** on screens larger than consumer TVs,
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21/3,K/20 (Item 3 from file: 696)
DIALOG(R)File 696:DIALOG Telecom. Newsletters

00635587
COMDEX TO SEE DTV FOR PC, MORE FLAT PANELS
AUDIO WEEK
November 16, 1998 DOCUMENT TYPE: NEWSLETTER
PUBLISHER: WARREN PUBLISHING INC.
LANGUAGE: ENGLISH WORD COUNT: 954 RECORD TYPE: FULLTEXT

TEXT:
...at Comdex this week in Las
Vegas, with Panasonic and Compaq showing jointly developed tuner- **decoder** boards, Philips and Intel promoting reference-design chipset, Quadrant releasing preliminary information on plans for software DTV **decoding** in PCs early next year -- as well as real time software **MPEG** -2 **encoding** . Meanwhile, downpriced LCD desktop monitors are likely to abound as vexing incompatibilities with PC video...

...in smarts from Sage.
Collaboration between Panasonic and Compaq will yield 2-board

DTV tuner- **decoder** available for sale to all PC makers by spring in $800-$1,000 range for...

...manufacture
boards in Osaka and make samples available by year-end, he told us. Boards **decode** all 18 ATSC formats and native **output** is 480p **displayable** on all PC monitors, Naimpally said. But **display** **output** depends on capability of PC's graphics card, and could be 720p for PCs monitors...

...video and audio
functions with dedicated PCI-based boards while latter is Philips DTV tuner- **decoder** chipset that leverages computational power of Intel Pentium processor in PC. Philips said it has...

...Naimpally told us ETA for

aftermarket retail product is "probably a year or thereabouts."

Nonhardware **decoding** for DTV might arrive sooner. Upcoming DTV **decoder** algorithm from Malvern, Pa.-based enabler Quadrant performs all-format ATSC **decoding** in software, much as does company's DVD product for PCs. Quadrant Exec. Vp Leonard...

...partners and OEM customers could come as soon as Jan. CES, he said.

Software DTV **decoding** would need Pentium-class PC in 400 MHz range, Sharp said, but less horsepower might...

...s case, also would determine output resolution to PC monitor -- 480p or higher. All-software **decoder** is capable of passing 1080i broadcast, Sharp said. Besides handling ATSC and NTSC signals, Quadrant design will **decode** high-definition satellite signals in world-standard DVB format, such as that used by Echostar deployment.

Real time **MPEG** -2 **encoding** through software is other trump card Quadrant is playing in Las Vegas this week. Sharp...

...as CSS, and will carry any encryption from source material to destination recording medium. For **MPEG** -2 **encoding** from analog sources, system is Macrovision compliant, Sharp said. He told us that Quadrant is...

...at Comdex this week in Las Vegas, with Panasonic and Compaq showing jointly developed tuner- **decoder** boards, Philips and Intel promoting reference-design chipset, Quadrant releasing preliminary information on plans for software DTV **decoding** in PCs early next year -- as well as real time software **MPEG** -2 **encoding** . Meanwhile, downpriced LCD desktop monitors are likely to abound as vexing incompatibilities with PC video...

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...partners and OEM customers could come as soon as Jan. CES, he said.

Software DTV **decoding** would need Pentium-class PC in 400 MHz range, Sharp said, but less horsepower might...

...s case, also would determine output resolution to PC monitor -- 480p or higher. All-software **decoder** is capable of passing 1080i broadcast, Sharp said. Besides handling ATSC and NTSC signals, Quadrant design will **decode** high-definition satellite signals in world-standard DVB format, such as that used by Echostar...

...from DirecTV, Sharp told us, but company seeks broader revenues from worldwide deployment.

Real time **MPEG** -2 **encoding** through software is other trump card Quadrant is playing in Las Vegas this week. Sharp...as CSS, and will carry any encryption from source material to destination recording medium. For **MPEG** -2 **encoding** from analog sources, system is Macrovision compliant, Sharp said. He told us that Quadrant is... ?

30/3,K/1 (Item 1 from file: 9)
DIALOG(R)File 9:Business & Industry(R)
(c) 2005 The Gale Group. All rts. reserv.

03091006 Supplier Number: 105614835 (USE FORMAT 7 OR 9 FOR FULLTEXT)
Tools take the offensive on network defense. (Security).
(RSA 2003 security conference)
Government Computer News, v 22, n 18, p 34
July 14, 2003
DOCUMENT TYPE: Journal ISSN: 0738-4300 (United States)
LANGUAGE: English RECORD TYPE: Fulltext
WORD COUNT: 1052

(USE FORMAT 7 OR 9 FOR FULLTEXT)

TEXT:
...the firewall and the e-mail servers, acting as a mail transfer agent. It inspects **packets** , scans for viruses, **strips** out macros, watches for malicious behavior, checks **content** and blocks spam at a rate of 120,000 messages per hour for e-mails...

30/3,K/2 (Item 1 from file: 16)
DIALOG(R)File 16:Gale Group PROMT(R)
(c) 2005 The Gale Group. All rts. reserv.

10608835 Supplier Number: 105614835 (USE FORMAT 7 FOR FULLTEXT)
Tools take the offensive on network defense. (Security).(RSA 2003 security conference)
Jackson, William
Government Computer News, v22, n18, p34(1)
July 14, 2003
Language: English Record Type: Fulltext
Document Type: Magazine/Journal; Professional Trade
Word Count: 1165

... the firewall and the e-mail servers, acting as a mail transfer agent. It inspects **packets** , scans for viruses, **strips** out macros, watches for malicious behavior, checks **content** and blocks spam at a rate

30/3,K/3 (Item 2 from file: 16)
DIALOG(R)File 16:Gale Group PROMT(R)
(c) 2005 The Gale Group. All rts. reserv.

07728376 Supplier Number: 64264326 (USE FORMAT 7 FOR FULLTEXT)
APPEALS COURT REMANDS PART OF FCC CALEA ORDER, CITING PRIVACY.(Government Activity)
Communications Daily, v20, n159, pNA
August 16, 2000
Language: English Record Type: Fulltext
Document Type: Newsletter; Trade
Word Count: 1305

(USE FORMAT 7 FOR FULLTEXT)
TEXT:
...nor the telecommunications industry to modify either the evidentiary standards or procedural safeguards to obtain **packets** from which call

content has not been **stripped** ," Judge David Tatel wrote. Legal wrangling has focused on degree of access Congress intended law...
... makes clear is inappropriate with only pen register, Sobel said. Ruling clarified that process of **stripping** **content** from **packet** - mode data shouldn't be left to law enforcement agency, he said.
"The court's...

30/3,K/4 (Item 3 from file: 16)
DIALOG(R)File 16:Gale Group PROMT(R)

06400487 Supplier Number: 54841538 (USE FORMAT 7 FOR FULLTEXT)
MPLS: The New Order in IP Networking?(Technology Information)
Nolle, Tom
Network, pNA
April 1, 1999
Language: English Record Type: Fulltext Abstract
Document Type: Magazine/Journal; Trade
Word Count: 3951

... headers, are simply carried in IP packets as data. At the destination end, the "envelope" **packet** is **removed** and the **contents** are handled in their native form. Since the contents of the IP packet aren't...

30/3,K/5 (Item 1 from file: 20)
DIALOG(R)File 20:Dialog Global Reporter

16252843 (USE FORMAT 7 OR 9 FOR FULLTEXT)
The new, improved noodle
TIMES OF INDIA
April 20, 2001
JOURNAL CODE: WTIN LANGUAGE: English RECORD TYPE: FULLTEXT
WORD COUNT: 816

...drawbacks. The same motions can get tedious after a while. Boil the water, snip the **packet** , empty the **contents** and **remove** from fire after two minutes. Soon even the most lazy amongst us starts looking round...

30/3,K/6 (Item 2 from file: 20)
DIALOG(R)File 20:Dialog Global Reporter

13641840 (USE FORMAT 7 OR 9 FOR FULLTEXT)
Information Appliances are Segmenting the Internet
BUSINESS WIRE
November 06, 2000
JOURNAL CODE: WBWE LANGUAGE: English RECORD TYPE: FULLTEXT
WORD COUNT: 445

(USE FORMAT 7 OR 9 FOR FULLTEXT)

Evolving Internet Segments
Internet PC Entertainment Wireless ----------
---------- --

Market Original Internet Start-up phase Ready to **take - off** Characteristics Maturing segment Cautious **content** Need **packet** owners network Billions of Need broadband Need useful content pages content
---
Client High performance Many...

30/3,K/7 (Item 3 from file: 20)
DIALOG(R)File 20:Dialog Global Reporter
(c) 2005 Dialog. All rts. reserv.

01940204 (USE FORMAT 7 OR 9 FOR FULLTEXT)
VersaNET Communications Inc. -- ISP Accelerator Delivers High Compression Rate for Faster Data Transfer
BUSINESS WIRE
June 16, 1998 9:40
JOURNAL CODE: WBWE LANGUAGE: English RECORD TYPE: FULLTEXT
WORD COUNT: 429

(USE FORMAT 7 OR 9 FOR FULLTEXT)

... allowing our subscribers to download information faster."
About Compression
Compression reduces the size of data **packets** resulting in higher faster transfer rates. Data **content** can be compressed by **removing** extra space characters or inserting smaller bit strings for frequently repeating ones. This process can...

30/3,K/8 (Item 1 from file: 47)
DIALOG(R)File 47:Gale Group Magazine DB(TM)
(c) 2005 The Gale group. All rts. reserv.

04406901 SUPPLIER NUMBER: 17943716 (USE FORMAT 7 OR 9 FOR FULL TEXT)
Quick meals on a budget: save time, save money on these healthy dinners. (recipes) (includes information on saving money on food)
Bazar, Marla
Parents Magazine, v71, n1, p103(6)
Jan, 1996
ISSN: 1047-8574 LANGUAGE: English RECORD TYPE: Fulltext; Abstract
WORD COUNT: 2165 LINE COUNT: 00162

... stirring often, until pork is cooked through. Remove pork mixture from skillet; set aside. 2. **Remove** flavor **packets** from noodle packages. Add water, **contents** of flavor **packets** , and noodles to skillet Bring to a boil, stirring twice. Reduce heat to medium, cover...

30/3,K/9 (Item 2 from file: 47)
DIALOG(R)File 47:Gale Group Magazine DB(TM)
(c) 2005 The Gale group. All rts. reserv.

03627794 SUPPLIER NUMBER: 11540867 (USE FORMAT 7 OR 9 FOR FULL TEXT)
30-minute skillet dinners. (includes recipes and related article on quick cook tips)
Edelstein, Marla
Parents' Magazine, v66, n12, p137(4)
Dec, 1991

CODEN: PMAGA ISSN: 1047-8574 LANGUAGE: ENGLISH RECORD TYPE: FULLTEXT; ABSTRACT
WORD COUNT: 1242 LINE COUNT: 00096

... stirring frequently, until pork is cooked through. Remove pork mixture from skillet. Set aside.
2. **Remove** flavor **packets** from noodle packages. Add water, **contents** of flavor **packets** , and noodles to skillet. Bring to boil, stirring twice. Reduce heat to medium, cover, and...

30/3,K/10 (Item 1 from file: 141)
DIALOG(R)File 141:Readers Guide

03259928 H.W. WILSON RECORD NUMBER: BRGA96009928 (USE FORMAT 7 FOR FULLTEXT)
Quick meals on a budget.
Parents (New York, N.Y.) v. 71 (Jan. 1996) p. 103-4+
WORD COUNT: 2244

(USE FORMAT 7 FOR FULLTEXT)

TEXT:
... stirring often, until pork is cooked through. Remove pork mixture from skillet; set aside.
2. **Remove** flavor **packets** from noodle packages. Add water, **contents** of flavor **packets** , and noodles to skillet. Bring to a boil, stirring twice. Reduce heat to medium, cover...

30/3,K/11 (Item 1 from file: 275)
DIALOG(R)File 275:Gale Group Computer DB(TM)

01311372 SUPPLIER NUMBER: 07339896 (USE FORMAT 7 OR 9 FOR FULL TEXT)
Learn to look for trouble in your network. (part 2)
Else, Kevin
DEC User, p77(1)
May, 1989
ISSN: 0263-6530 LANGUAGE: ENGLISH RECORD TYPE: FULLTEXT; ABSTRACT
WORD COUNT: 1034 LINE COUNT: 00081

...ABSTRACT: the cable. Test methods include loopback and stress testing. A protocol analyzer is needed to **extract packets** and examine their **contents** individually.
... users than a system falling over again 15 minutes after restarting work.
Protocol testing involves **extracting packets** from the network and examining their **contents** . Problems caused by protocol erros are, for example, a new node that cannot communicate with...

30/3,K/12 (Item 1 from file: 696)
DIALOG(R)File 696:DIALOG Telecom. Newsletters

00740321

APPEALS COURT REMANDS PART OF CALEA ORDER TO FCC
MOBILE COMMUNICATIONS REPORT
August 21. 2000 DOCUMENT TYPE: NEWSLETTER
PUBLISHER: WARREN PUBLISHING INC.
LANGUAGE: ENGLISH WORD COUNT: 1361 RECORD TYPE: FULLTEXT

TEXT:
...neither
Commission nor telecommunications industry to modify either evidentiary standards or procedural safeguards to obtain **packets** from which call **content** has not been **stripped** ," Judge David Tatel wrote. Legal wrangling has focused on degree of access Congress intended law...makes clear is inappropriate with only pen register, Sobel said. Ruling clarified that process of **stripping** **content** from **packet** -mode data shouldn't be

30/3,K/13 (Item 2 from file: 696)
DIALOG(R)File 696:DIALOG Telecom. Newsletters

00739984
INDUSTRY LAUDS CALEA RULING, PRIVACY GROUPS SEE BROADER IMPACT
WASHINGTON TELECOM NEWSWIRE
August 15, 2000 DOCUMENT TYPE: NEWSLETTER
PUBLISHER: WARREN PUBLISHING INC.
LANGUAGE: ENGLISH WORD COUNT: 437 RECORD TYPE: FULLTEXT

TEXT:
...inappropriate with only a pen register, Sobel said. The ruling clarifies that the process of **stripping** **content** from **packet** -mode data should not be left to a law enforcement agency, he said.

CTIA lauded...

30/3,K/14 (Item 1 from file: 674)
DIALOG(R)File 674:Computer News Fulltext

117864
Classifying packets in a single pass
Journal: Network World Page Number: 31
Publication Date: July 18, 05
Word Count: 474 Line Count: 49

Text:
... and on to an intrusion-prevention/intrusion-detection system(IPS/IDS), which not only inspects **packet** **content** for signs of intrusion but also **extracts** , normalizes and processes informationabout the **content** and stores it in a centralized content management repository. The content repository is especially useful...
?

```
?  show files; ds; save temp; logoff hold
File 344:Chinese Patents Abs Aug 1985-2005/May
         (c) 2005 European Patent Office
File 347:JAPIO Nov 1976-2005/Jun(Updated 051004)
         (c) 2005 JPO & JAPIO
File 350:Derwent WPIX 1963-2005/UD,UM &UP=200569
         (c) 2005  Thomson Derwent
File 371:French Patents 1961-2002/BOPI 200209
         (c) 2002 INPI.  All rts. reserv.

Set     Items   Description
S1        187   (ENCAPSULAT? OR EN()CAPSULAT? OR CAPSULAT? OR COVER? OR CA-
              S? OR EMBED? OR ENCLOS??? OR ENCAS? OR SEAL?)(7N)(MPEG OR MOV-
              ING()PICTURE? ?()DISPLAY()GROUP? ?)
S2        184   DOCSIS OR DATA()OVER()CABLE()SERVICE()INTERFAC? ?()SPECIFI-
              CATION? ?
S3       2021   FORMAT?(3N)MESSAGE? ?
S4      25044   (STRIP? OR REMOV? OR UNCOVER? OR  TAK?()OFF OR WITHDRAW OR
              EXTRACT?)(7N)CONTENT?
S5         50   S4(7N)PACKET? ?
S6       5236   MAC OR (MEDIUM OR MEDIA)()ACESS()CONTROL
S7       2444   ENCOD?(5N)(MPEG OR MOVING()PICTURE? ?()DISPLAY()GROUP? ?)
S8     176371   DECOD?
S9     138546   (DISPLAY? OR SHOW? OR VIEW?)(5N)(SIGNAL OR OUTPUT)
S10         0   (MPEG OR MOVING()PICTURE? ?()DISPLAY()GROUP? ?)(3W)(ENCAPS-
              ULAT? OR EN()CAPSULAT? OR CAPSULAT? OR COVER? OR CAS? OR EMBE-
              D? OR ENCLOS??? OR ENCAS? OR SEAL?)(3W)(DOCSIS OR DATA()OVER(-
              )CABLE()SERVICE()INTERFAC? ?()SPECIFICATION? ?)
S11        52   AU=(CRAVEN, J? OR CRAVEN J? OR BUGAJSKI, M? OR BUGAJSKI M?)
S12    898803   IC=H04N?
S13         4   S12 AND S11
S14         0   S1 AND S2
S15         2   (ENCAPSULAT? OR EN()CAPSULAT? OR CAPSULAT? OR COVER? OR CA-
              S? OR EMBED? OR ENCLOS??? OR ENCAS? OR SEAL?)AND(MPEG OR MOVI-
              NG()PICTURE? ?()DISPLAY()GROUP? ?) AND (DOCSIS OR DATA()OVER(-
              )CABLE()SERVICE()INTERFAC? ?()SPECIFICATION? ?)
S16      6362   S9 AND S8
S17        65   S16 AND S7
S18         0   S17 AND S6
S19         0   S17 AND S5
S20         1   S17 AND S4
S21         0   S17 AND S5
S22         0   S17 AND S2
S23         0   S17 AND S1
S24         3   S16 AND S1
S25         3   S24 NOT (S15 OR S20)
S26         0   S24 AND S2
```

13/3,K/1 (Item 1 from file: 350)

DIALOG(R)File 350:Derwent WPIX

016775051 **Image available**
WPI Acc No: 2005-099329/200511
Related WPI Acc No: 2005-048231
XRPX Acc No: N05-086204

Upstream cable modem data traffic conversion device for community antenna TV system, has interface provided between combined upconverted upstream traffic signal with downstream traffic signal, and network connection point

Patent Assignee: BIONE A (BION-I); BUGAJSKI M (BUGA-I); GILLFILAN D (GILL-I); ARRIS INT INC (ARRI-N)
Inventor: BIONE A; **BUGAJSKI M** ; GILLFILAN D; GILLFILLAN D
Number of Countries: 108 Number of Patents: 002
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 20040268402	A1	20041230	US 2003472200	P	20030521	200511 B
			US 2003482740	P	20030626	
			US 2004850617	A	20040521	
WO 200502115	A2	20050106	WO 2004US15954	A	20040521	200511

Priority Applications (No Type Date): US 2004850617 A 20040521; US 2003472200 P 20030521; US 2003482740 P 20030626
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 20040268402	A1		12	H04N-007/173	Provisional application US 2003472200
					Provisional application US 2003482740
WO 200502115	A2	E		H04L-000/00	

Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BW BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE EG ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NA NI NO NZ OM PG PH PL PT RO RU SC SD SE SG SK SL SY TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW
Designated States (Regional): AT BE BG BW CH CY CZ DE DK EA EE ES FI FR GB GH GM GR HU IE IT KE LS LU MC MW MZ NA NL OA PL PT RO SD SE SI SK SL SZ TR TZ UG ZM ZW

...Inventor: **BUGAJSKI M**
...International Patent Class (Main): **H04N-007/173**

13/3,K/2 (Item 2 from file: 350)

DIALOG(R)File 350:Derwent WPIX

016723956 **Image available**
WPI Acc No: 2005-048231/200505
Related WPI Acc No: 2005-099329
XRPX Acc No: N05-042041

System for simultaneously providing subscriber video services and data services, transmits and receives data signals at broadcast channel frequencies, and transmits video content signals at frequencies higher than channel frequencies

Patent Assignee: BLONE A (BLON-I); BUGAJSKI M (BUGA-I); GILLFILLAN D (GILL-I); HAVERKATE D (HAVE-I); HAVERKATE M (HAVE-I); ISAACS B (ISAA-I); ARRIS INT INC (ARRI-N)

Inventor: BLONE A; **BUGAJSKI M** ; GILLFILLAN D; HAVERKATE D; HAVERKATE M; ISAACS B; BIONE A
Number of Countries: 108 Number of Patents: 002
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 2004105406	A2	20041202	WO 2004US16098	A	20040521	200505 B
US 20050010962	A1	20050113	US 2003472200	P	20030521	200506
			US 2003482640	P	20030626	
			US 2004850616	A	20040521	

Priority Applications (No Type Date): US 2003482640 P 20030626; US 2003472200 P 20030521; US 2004850616 A 20040521
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
WO 2004105406	A2	E	34	H04Q-000/00	

Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BW BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE EG ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NA NI NO NZ OM PG PH PL PT RO RU SC SD SE SG SK SL SY TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW
Designated States (Regional): AT BE BG BW CH CY CZ DE DK EA EE ES FI FR GB GH GM GR HU IE IT KE LS LU MC MW MZ NA NL OA PL PT RO SD SE SI SK SL SZ TR TZ UG ZM ZW

US 20050010962	A1		H04N-007/173	Provisional application US 2003472200
				Provisional application US 2003482640

...Inventor: **BUGAJSKI M**
International Patent Class (Main): **H04N-007/173** ...

13/3,K/3 (Item 3 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2005 Thomson Derwent. All rts. reserv.

016559487 **Image available**
WPI Acc No: 2004-718227/200470
XRPX Acc No: N04-569378

Set-top box for providing high speed data service and telephony service decodes multimedia content of broadband format, received from broadband communication circuitry and provides decoded content to user devices based on content type

Patent Assignee: BUGAJSKI M (BUGA-I); CRAVEN J (CRAV-I); ARRIS INT INC (ARRI-N)
Inventor: **BUGAJSKI M** ; **CRAVEN J**
Number of Countries: 108 Number of Patents: 002
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 20040194147	A1	20040930	US 2003459103	P	20030331	200470 B
			US 2004814029	A	20040331	
WO 200491104	A2	20041021	WO 2004US10116	A	20040331	200470

Priority Applications (No Type Date): US 2003459103 P 20030331; US 2004814029 A 20040331
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 20040194147	A1		9	H04N-007/20	Provisional application US 2003459103
WO 200491104	A2	E		H04B-000/00	

Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BW BY BZ

CA CH CN CO CR CU CZ DE DK DM DZ EC EE EG ES FI GB GD GE GH GM HR HU ID
IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ
NA NI NO NZ OM PG PH PL PT RO RU SC SD SE SG SK SL SY TJ TM TN TR TT TZ
UA UG US UZ VC VN YU ZA ZM ZW
Designated States (Regional): AT BE BG BW CH CY CZ DE DK EA EE ES FI FR
GB GH GM GR HU IE IT KE LS LU MC MW MZ NL OA PL PT RO SD SE SI SK SL SZ
TR TZ UG ZM ZW
Inventor: **BUGAJSKI M ...**

... CRAVEN J
...International Patent Class (Main): **H04N-007/20**
International Patent Class (Additional): **H04N-007/173**

13/3,K/4 (Item 4 from file: 350)
DIALOG(R)File 350:Derwent WPIX

015340682 **Image available**
WPI Acc No: 2003-401620/200338
XRPX Acc No: N03-320296
Converged multimedia portal has multimedia processing module extracting multimedia signal from data signal received by network interface module, and then transmitting extracted signal to respective multimedia device
Patent Assignee: BUGAJSKI M (BUGA-I); CRAVEN J A (CRAV-I)
Inventor: **BUGAJSKI M ; CRAVEN J A**
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
US 20030014757	A1	20030116	US 2001304134	P	20010710	200338	B
			US 2002167952	A	20020612		

Priority Applications (No Type Date): US 2001304134 P 20010710; US 2002167952 A 20020612
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 20030014757	A1		11	H04N-007/18	Provisional application US 2001304134

Inventor: **BUGAJSKI M ...**
... CRAVEN J A
International Patent Class (Main): **H04N-007/18**
International Patent Class (Additional): **H04N-007/00 ...**

... H04N-007/16 ...

... H04N-007/173 ...

... H04N-011/00

15/3,K/1 (Item 1 from file: 350)
DIALOG(R)File 350:Derwent WPIX

017141416 **Image available**
WPI Acc No: 2005-465761/200547
XRPX Acc No: N05-378108

Memory control system for mobile terminal connected to e.g. digital video broadcasting network, reserves portion of storage capacity of memory in mobile terminal for selected content, such that terminals stores content in reserved space

Patent Assignee: NOKIA CORP (OYNO); NOKIA INC (OYNO)
Inventor: HANNIKAINEN A; MUHONEN A; VAINIO A; HAENNIKAEINEN A
Number of Countries: 108 Number of Patents: 002
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
US 20050129042	A1	20050616	US 2003738836	A	20031216	200547	B
WO 200560291	A1	20050630	WO 2004IB4119	A	20041213	200547	

Priority Applications (No Type Date): US 2003738836 A 20031216
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 20050129042	A1		23	H04L-012/28	
WO 200560291	A1	E		H04Q-007/32	

Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BW BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE EG ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NA NI NO NZ OM PG PH PL PT RO RU SC SD SE SG SK SL SY TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW
Designated States (Regional): AT BE BG BW CH CY CZ DE DK EA EE ES FI FR GB GH GM GR HU IE IS IT KE LS LT LU MC MW MZ NA NL OA PL PT RO SD SE SI SK SL SZ TR TZ UG ZM ZW

Abstract (Basic):
... network, DVB handheld network, DVB cable network, DVB-satellite network, DVB internet protocol (IP) network, **data over cable service interface specification** (**DOCSIS**) network, Japanese terrestrial integrated service digital broadcasting (ISDB-T) network, digital audio broadcasting (DAB) network and multimedia broadcast multi- **cast** service (MBMS) network in communication system e.g. third generation (3G) system e.g. global...

Technology Focus:
... The transmission of audio/video content conforms to **MPEG** -2 standard. The mobile station operates in accordance with digital broadcasting technique that conforms to...

...EN 300 744 standards. The mobile station operates in accordance with different broadcast and multi- **cast** techniques that conform to 3GPPTS 22.146 standard. The wireless access points (APs) connected to...

15/3,K/2 (Item 2 from file: 350)
DIALOG(R)File 350:Derwent WPIX

016198213 **Image available**
WPI Acc No: 2004-356099/200433
XRPX Acc No: N04-284715

Adaptive data packet throughput rate control method in satellite communication system, involves modulating and encoding parsed data packets in each packet queue based on profiles assigned to queues

Patent Assignee: BRESCIA R (BRES-I); CAMERON K (CAME-I); CHIEN J (CHIE-I); DALE M (DALE-I); GIN A (GINA-I); HARTMAN D (HART-I); HEBSGAARD A (HEBS-I); JAFFE S (JAFF-I); KRAFFT S (KRAF-I); KWENTUS A (KWEN-I); LIN D (LIND-I); WANG J (WANG-I)

Inventor: BRESCIA R; CAMERON K; CHIEN J; DALE M; GIN A; HARTMAN D; HEBSGAARD A; JAFFE S; KRAFFT S; KWENTUS A; LIN D; WANG J

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 20040085976	A1	20040506	US 2002424205	P	20021106	200433 B
			US 2002319929	A	20021212	

Priority Applications (No Type Date): US 2002424205 P 20021106; US 2002319929 A 20021212

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 20040085976	A1		16	H04L-012/28	Provisional application US 2002424205

Abstract (Basic):

... For adaptive control of data packet throughput rate using **data over cable service interface specification** (**DOCSIS**) media access protocol in satellite communication system, cellular telephone system, terrestrial fixed wireless system, internet...

...in less degraded channels to achieve higher bandwidth efficiency, thereby improving channel capacity, throughput and **coverage** .

Technology Focus:

... The data packets in packet queues conform to **MPEG** format.

?

20/3,K/1 (Item 1 from file: 350)
DIALOG(R)File 350:Derwent WPIX

013656538 **Image available**
WPI Acc No: 2001-140750/200115
XRPX Acc No: N01-102730
Audio signal encoder **for** MPEG **audio system, has quantizers to respectively quantize extracted parameter, based on synthetic spectrum envelope, input frequency spectrum information**
Patent Assignee: MATSUSHITA DENKI SANGYO KK (MATU)
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
JP 2000206989	A	20000728	JP 993299	A	19990108	200115	B

Priority Applications (No Type Date): JP 993299 A 19990108
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
JP 2000206989	A		23	G10L-019/00	

Audio signal encoder **for** MPEG **audio system, has quantizers to respectively quantize extracted parameter, based on synthetic spectrum envelope, input...**

Abstract (Basic):
... An INDEPENDENT CLAIM is also included for audio signal **decoder**

...

...Audio signal **encoder** for e.g. **MPEG** audio system...

...a result quantization efficiency is raised even if it narrow banded audio signal. Since parameters **extracted** are quantized, the information **content** is reduced, and hence the symbol row of encoding signal output from encoder is decreased...

...The figure **shows** the block diagram of audio **signal** encoder
?

25/3,K/1 (Item 1 from file: 347)
DIALOG(R)File 347:JAPIO

07349967 **Image available**
VIDEO REPRODUCING DEVICE

PUB. NO.: 2002-218458 [JP 2002218458 A]
PUBLISHED: August 02, 2002 (20020802)
INVENTOR(s): MARUTANI KENSUKE
APPLICANT(s): MATSUSHITA ELECTRIC IND CO LTD
APPL. NO.: 2001-005417 [JP 20015417]
FILED: January 12, 2001 (20010112)

ABSTRACT

... a network in which bands fluctuate, with low delay, by using a general purpose MPEG **decoder** .

SOLUTION: A transmission signal from the network, etc., is converted into an MPEG data stream...

... data converting part 2. The converting part 2 rewrites the sequence header of an inputted **MPEG** data stream, inserts **covering** data between pieces of picture data, inserts/eliminates picture data, replaces picture data or the like, and sends a converted MPEG data stream to an MPEG **decoding** part 3. The **decoding** part 3 **decodes** an inputted MPEG data stream and outputs a **decoded** video **signal** to a **display** monitor, etc., (not shown in the Figure).

25/3,K/2 (Item 2 from file: 347)
DIALOG(R)File 347:JAPIO

06996449 **Image available**
IMAGE COMPRESSION CODER

PUB. NO.: 2001-224029 [JP 2001224029 A]
PUBLISHED: August 17, 2001 (20010817)
INVENTOR(s): NAKAMURA KAZUHIRO
APPLICANT(s): TOSHIBA CORP
APPL. NO.: 2000-029313 [JP 200029313]
FILED: February 07, 2000 (20000207)

ABSTRACT

... high quality by optimizing a data quantity remaining in an input buffer memory of a **decoder** just before **decoding** an I picture in the **case** of coding in compliance with the **MPEG** -2 video standards after applying inverse telecine processing to a telecine image signal to eliminate...

...of this information so that a B picture before an I picture is an image **signal** with repeating fields. Thus, a **display** time of the B picture is a time equivalent to 3 fields, data remaining in an input buffer memory at a **decoder** just before **decoding** the I picture are increased so as to increase a generated code quantity of a...

25/3,K/3 (Item 1 from file: 350)
DIALOG(R)File 350:Derwent WPIX

014666514 **Image available**
WPI Acc No: 2002-487218/200252
Method for searching satellite broadcast program guide information database
Patent Assignee: KOREA TELECOM (KOTE-N)
Inventor: BAE S R; LEE H; PARK Y H; SEO J H
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
KR 2002006304	A	20020119	KR 200039889	A	20000712	200252	B

Priority Applications (No Type Date): KR 200039889 A 20000712
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
KR 2002006304	A		1	G06F-017/30	

Abstract (Basic):
... respect to the selected channel is converted into red/green/blue(RGB) signals by a **MPEG** -II **decoder** (S4). In the **case** that a user requests a program search, the program guide information database is driven, and...
...ad, an Internet browser is driven, and a VGA signal is overlaid to a video **signal** , and a HTML is **displayed** on the screen of the TV(S7). When a product purchase is completed, the mode...
?

```
? show files; ds; save temp; logoff hold
File   2:INSPEC 1898-2005/Oct W4
         (c) 2005 Institution of Electrical Engineers
File   6:NTIS 1964-2005/Oct W4
         (c) 2005 NTIS, Intl Cpyrght All Rights Res
File   8:Ei Compendex(R) 1970-2005/Oct W4
         (c) 2005 Elsevier Eng.  Info. Inc.
File  34:SciSearch(R) Cited Ref Sci 1990-2005/Oct W4
         (c) 2005 Inst for Sci Info
File  35:Dissertation Abs Online 1861-2005/Oct
         (c) 2005 ProQuest Info&Learning
File  65:Inside Conferences 1993-2005/Oct W4
         (c) 2005 BLDSC all rts. reserv.
File  94:JICST-EPlus 1985-2005/Aug W4
         (c)2005 Japan Science and Tech Corp(JST)
File  95:TEME-Technology & Management 1989-2005/Sep W4
         (c) 2005 FIZ TECHNIK
File  99:Wilson Appl. Sci & Tech Abs 1983-2005/Sep
         (c) 2005 The HW Wilson Co.
File 144:Pascal 1973-2005/Oct W4
         (c) 2005 INIST/CNRS
File 434:SciSearch(R) Cited Ref Sci 1974-1989/Dec
         (c) 1998 Inst for Sci Info
File 583:Gale Group Globalbase(TM) 1986-2002/Dec 13
         (c) 2002 The Gale Group
File 603:Newspaper Abstracts 1984-1988
         (c)2001 ProQuest Info&Learning
File 483:Newspaper Abs Daily 1986-2005/Oct 31
         (c) 2005 ProQuest Info&Learning

Set     Items   Description
S1       1001   (ENCAPSULAT? OR EN()CAPSULAT? OR CAPSULAT? OR COVER? OR CA-
             S? OR EMBED? OR ENCLOS??? OR ENCAS? OR SEAL?)(7N)(MPEG OR MOV-
             ING()PICTURE? ?()DISPLAY()GROUP? ?)
S2        474   DOCSIS OR DATA()OVER()CABLE()SERVICE()INTERFAC? ?()SPECIFI-
             CATION? ?
S3       1566   FORMAT?(3N)MESSAGE? ?
S4      24419   (STRIP? OR REMOV? OR UNCOVER? OR  TAK?()OFF OR WITHDRAW OR
             EXTRACT?)(7N)CONTENT?
S5         23   S4(7N)PACKET? ?
S6      56759   MAC OR (MEDIUM OR MEDIA)()ACESS()CONTROL
S7       3761   ENCOD?(5N)(MPEG OR MOVING()PICTURE? ?()DISPLAY()GROUP? ?)
S8     119373   DECOD?
S9      88051   (DISPLAY? OR SHOW? OR VIEW?)(5N)(SIGNAL OR OUTPUT)
S10         0   (MPEG OR MOVING()PICTURE? ?()DISPLAY()GROUP? ?)(3N)(ENCAPS-
             ULAT? OR EN()CAPSULAT? OR CAPSULAT? OR COVER? OR CAS? OR EMBE-
             D? OR ENCLOS??? OR ENCAS? OR SEAL?)(3N)(DOCSIS OR DATA()OVER(-
             )CABLE()SERVICE()INTERFAC? ?()SPECIFICATION? ?)
S11      1234   AU=(CRAVEN, J? OR CRAVEN J? OR BUGAJSKI, M? OR BUGAJSKI M?)
S12         0   S11 AND S1
S13         0   S11 AND S2
S14         0   S1 AND S2
S15         0   S2 AND S3
S16         1   S3 AND S4
S17         0   S5 AND S6
S18       888   S7 AND S8
S19         0   S18 AND S2
S20        12   S2 AND (MPEG OR MOVING()PICTURE? ?()DISPLAY()GROUP? ?)
S21         6   RD (unique items)
S22         0   (ENCAPSULAT? OR EN()CAPSULAT? OR CAPSULAT? OR COVER? OR CA-
```

S? OR EMBED? OR ENCLOS??? OR ENCAS? OR SEAL?) AND (MPEG OR MOVING()PICTURE? ?()DISPLAY()GROUP? ?) AND S2

16/3,K/1 (Item 1 from file: 6)
DIALOG(R)File 6:NTIS

1208764 NTIS Accession Number: AD-A159 670/9
Automatic Processing of Navy Message Narrative
(Interim rept)
Marsh, E. ; Froscher, J. ; Grishman, R. ; Hamburger, H. ; Bachenko, J.
Naval Research Lab., Washington, DC.
Corp. Source Codes: 000927000; 251950
Report No.: NRL-8893
21 Aug 85 23p
Languages: English
Journal Announcement: GRAI8602
Order this product from NTIS by: phone at 1-800-553-NTIS (U.S. customers); (703)605-6000 (other countries); fax at (703)321-8547; and email at orders@ntis.fedworld.gov. NTIS is located at 5285 Port Royal Road, Springfield, VA, 22161, USA.
NTIS Prices: PC A02/MF A01

... work is to develop capabilities that will enable systems to handle a broad spectrum of **messages** , from highly **formatted messages** with little English description to messages consisting entirely of English narrative. In this report, an...
... the first step towards automated understanding of Navy messages was constructed and implemented. The system **extracts** informational **content** from reports about shipboard equipment failure and uses the content to assign a distribution list...
?

21/3,K/1 (Item 1 from file: 2)
DIALOG(R)File 2:INSPEC

09560434 INSPEC Abstract Number: B2005-10-6240-003
Title: Driving DOCSIS **3.0 [channel bonding]**
Author(s): Brown, K.
Journal: CED vol.31, no.4 p.18-25
Publisher: Cahners Business Information,
Publication Date: April 2005 Country of Publication: USA
CODEN: CCEDE3 ISSN: 1044-2871
SICI: 1044-2871(200504)31:4L.18:DDCB;1-6
Material Identity Number: I824-2005-004
Language: English
Subfile: B

Title: Driving DOCSIS **3.0 [channel bonding]**
...Abstract: for more speed, cable operators are poised to respond with a sounded-up model of **DOCSIS** . One of the key pins of this still-evolving, turbocharged **DOCSIS** 3.0 spec is channel bonding (or wideband) technology. While channel bonding is an attracting...

...spreads data over multiple channels rather than the single channels used to day. Armed with **DOCSIS** 3.0 modem, customers could receive 50 Megabits per second-or even 100 Mbps or...

... competition. Data is indeed the initial focus for channel bonding as part of the developing **DOCSIS** 3.0 specification, and it has attracted several proposals from silicon and CMTS vendors. That includes Cisco Systems, which has offered up a scheme that uses the **MPEG** layer to initially weld together as many as 24 channels drawn from anywhere in a...

... device, much like the modular CMTS unit designs CableLabs also is considering as part of **DOCSIS** 3.0.
...Identifiers: **DOCSIS** 3.0 modem

21/3,K/2 (Item 2 from file: 2)
DIALOG(R)File 2:INSPEC

07737418 INSPEC Abstract Number: B2000-12-6210R-006
Title: Supporting MPEG **video transport on** DOCSIS **-compliant cable networks**
Author(s): Bushmitch, D.; Mukherjee, S.; Narayanan, S.; Ratty, M.; Qun Shi
Author Affiliation: Panasonic Inf. & Networking Technol. Lab., Princeton, NJ, USA
Journal: IEEE Journal on Selected Areas in Communications vol.18, no.9 p.1581-96
Publisher: IEEE,
Publication Date: Sept. 2000 Country of Publication: USA
CODEN: ISACEM ISSN: 0733-8716
SICI: 0733-8716(200009)18:9L.1581:SMVT;1-E
Material Identity Number: D958-2000-010
U.S. Copyright Clearance Center Code: 0733-8716/2000/$10.00
Language: English

Subfile: B
Copyright 2000, IEE

Title: Supporting MPEG **video transport on** DOCSIS **-compliant cable networks**

...Abstract: scheduling mechanism suitable for transporting variable bit rate video in the upstream direction over a **DOCSIS** (data over cable system interface specification)-compliant cable network is presented. It is shown, via...

... video traces, that the proposed scheduling service provides significant improvements as compared to the existing **DOCSIS** QoS scheduling services, with regard to bandwidth utilization and latency distribution. The proposed scheduling service...

Identifiers: **MPEG** video transport...

... **DOCSIS** -compliant cable networks

21/3,K/3 (Item 3 from file: 2)
DIALOG(R)File 2:INSPEC
(c) 2005 Institution of Electrical Engineers. All rts. reserv.

07178018 INSPEC Abstract Number: B1999-04-6150M-012, C1999-04-5640-007

Title: Dynamic bandwidth allocation scheme for MCNS DOCSIS

Author(s): Chen Jian; Qian Ying; Chen Huimin; Li Yingchun; Chen Jainqiang
Author Affiliation: Sch. of Commun. & Inf., Shanghai Univ., China
Journal: Journal of Shanghai University vol.2, no.4 p.328-33
Publisher: Editorial Board of J. Shanghai Univ,
Publication Date: Dec. 1998 Country of Publication: China
ISSN: 1007-6417
SICI: 1007-6417(199812)2:4L.328:DBAS;1-#
Material Identity Number: G391-1999-001
Language: English
Subfile: B C
Copyright 1999, IEE

Title: Dynamic bandwidth allocation scheme for MCNS DOCSIS

Abstract: This paper gives a method of bandwidth allocation for MCNS **DOCSIS** . A variable CS/DS allocation algorithm regarding the demands of the data slots is proposed...

Identifiers: MCNS **DOCSIS** ; ...

... **MPEG** packet stream

21/3,K/4 (Item 4 from file: 2)
DIALOG(R)File 2:INSPEC
(c) 2005 Institution of Electrical Engineers. All rts. reserv.

07043950 INSPEC Abstract Number: B9811-6150C-044

Title: Erroneous MPEG **packet synchronization in the MCNS/SCTE/ITU-T J.83 Annex B standard**

Author(s): Juan, Y.
Author Affiliation: Digital Media Syst. Lab., Hitachi America Ltd., Brisbane, CA, USA
Journal: IEEE Transactions on Consumer Electronics Conference Title: IEEE Trans. Consum. Electron. (USA) vol.44, no.3 p.963-8

Publisher: IEEE,
Publication Date: Aug. 1998 Country of Publication: USA
CODEN: ITCEDA ISSN: 0098-3063
SICI: 0098-3063(199808)44:3L.963:EMPS;1-K
Material Identity Number: I273-98004
U.S. Copyright Clearance Center Code: 0098-3063/98/$10.00
Conference Title: 1998 International Conference on Consumer Electronics
Conference Date: 2-4 June 1998 Conference Location: Los Angeles, CA, USA
Language: English
Subfile: B

Title: Erroneous MPEG **packet synchronization in the MCNS/SCTE/ITU-T J.83 Annex B standard**

...Abstract: a phenomenon with repeating data packets sent according to the MCNS (multimedia cable network system) **DOCSIS** (**data over cable service interface specification**)/SCTE (Society of Cable Telecommunication Engineers)/ITU-T 5.83 Annex B standard. When repeating...

...by a receiver, the receiver may erroneously lock onto the bit stream and produces incorrect **MPEG** packets. Repeating packets are usually not generated in practical systems. They are, however, easy to...

Identifiers: erroneous **MPEG** packet synchronization...

... **DOCSIS** ; ...

... **data over cable service interface specification** ;

21/3,K/5 (Item 1 from file: 8)
DIALOG(R)File 8:Ei Compendex(R)

05100594 E.I. No: EIP98084344388

Title: Erroneous MPEG **packet synchronization in FEC decoder of the MCNS/SCTE/ITU-T J.83 Annex B standard**

Author: Juan, Yujen
Corporate Source: Hitachi America, Ltd, Princeton, NJ, USA
Conference Title: Proceedings of the 1998 17th Conference on Consumer Electronics
Conference Location: Los Angeles, CA, USA Conference Date: 19980602-19980604
E.I. Conference No.: 48804
Source: Digest of Technical Papers - IEEE International Conference on Consumer Electronics 1998. IEEE, Piscataway, NJ, USA,98CH36160. p 372-373 THAM 22.4
Publication Year: 1998
CODEN: DTPEEL ISSN: 0747-668X
Language: English

Title: Erroneous MPEG **packet synchronization in FEC decoder of the MCNS/SCTE/ITU-T J.83 Annex B...**

...Abstract: a phenomenon with repeating data packets sent according to the MCNS (Multimedia Cable Network System) **DOCSIS** (**Data Over Cable Service Interface Specification**)/SCTE (Society of Cable Television Engineers)/ITU-T J.83 Annex B standard. When repeating...

...by a receiver, the receiver may erroneously lock onto the bit stream and

produces incorrect **MPEG** packets. Repeating packets are usually not generated in practical systems. They are, however, easy to...
Identifiers: Motion Picture Experts Group (**MPEG**) standards

21/3,K/6 (Item 1 from file: 95)
DIALOG(R)File 95:TEME-Technology & Management

01770568 20030601869
Bridging the gap between fixed and mobile devices
Berenbroek, BL
Ubicom, Antwerpen, B
Bluetooth, 4. Kongress, Dortmund, DE, 29.-30. Jan, 20032003
Document type: Conference paper Language: English
Record type: Abstract

ABSTRACT:
...durch Prozessoren mit fester Registerstruktur optimal verarbeitet wurden, sind heutige Anwendungen (MP3, Voive-over-Internet, **MPEG** , Ethernet, Fast Ethernet, 802.11-Varianten, Bluetooth, HomePlug, USB, DSL, **Docsis** , PCMCIA, ISDN, GPRS usw.) durch variable Datenpaketgroessen gekennzeichnet. Darueber hinaus sind die Prozessorkosten und die...
?

```
? show files; ds; save temp; logoff hold
File 256:TecInfoSource 82-2005/Jan
         (c) 2005 Info.Sources Inc

Set     Items   Description
S1         12   (ENCAPSULAT? OR EN()CAPSULAT? OR CAPSULAT? OR COVER? OR CA-
               S? OR EMBED? OR ENCLOS??? OR ENCAS? OR SEAL?)(7N)(MPEG OR MOV-
               ING()PICTURE? ?()DISPLAY()GROUP? ?)
S2         21   DOCSIS OR DATA()OVER()CABLE()SERVICE()INTERFAC? ?()SPECIFI-
               CATION? ?
S3         65   FORMAT?(3N)MESSAGE? ?
S4         80   (STRIP? OR REMOV? OR UNCOVER? OR  TAK?()OFF OR WITHDRAW OR
               EXTRACT?)(7N)CONTENT?
S5          0   S4(7N)PACKET? ?
S6        710   MAC OR (MEDIUM OR MEDIA)()ACESS()CONTROL
S7         84   ENCOD?(5N)(MPEG OR MOVING()PICTURE? ?()DISPLAY()GROUP? ?)
S8        249   DECOD?
S9         93   (DISPLAY? OR SHOW? OR VIEW?)(5N)(SIGNAL OR OUTPUT)
S10         0   (MPEG OR MOVING()PICTURE? ?()DISPLAY()GROUP? ?)(3W)(ENCAPS-
               ULAT? OR EN()CAPSULAT? OR CAPSULAT? OR COVER? OR CAS? OR EMBE-
               D? OR ENCLOS??? OR ENCAS? OR SEAL?)(3W)(DOCSIS OR DATA()OVER(-
               )CABLE()SERVICE()INTERFAC? ?()SPECIFICATION? ?)
S11         0   AU=(CRAVEN, J? OR CRAVEN J? OR BUGAJSKI, M? OR BUGAJSKI M?)
S12         1   S1(S)S2
S13         0   S3(S)S4
S14         2   S6(S)S7
S15         0   S8(S)S9
```

12/3,K/1
DIALOG(R)File 256:TecInfoSource

00132211 DOCUMENT TYPE: Review

PRODUCT NAMES: DSL (840386)

TITLE: DSL Has To Shake Free Of The Internet
AUTHOR: Nolle, Tom
SOURCE: Business Communications Review, v31 n6 p10(2) Jun 2001
ISSN: 0162-3885
HOMEPAGE: http://www.bcr.com

RECORD TYPE: Review
REVIEW TYPE: Product Analysis
GRADE: Product Analysis, No Rating

REVISION DATE: 20031030

...and 4 can be used to conserve access bandwidth. On cable modem systems using the **DOCSIS** specification, IP is transported in a MPEG-2 framework. When an IP layer is eliminated...

...be considered are Digital Video Broadcast specifications which offer four ways to transport video using **MPEG** , one of which is Multiprotocol **Encapsulation** (MPE). All these considerations are part of the profitability puzzle that carriers and users have...
?

14/3,K/1
DIALOG(R)File 256:TecInfoSource

00133112 DOCUMENT TYPE: Review

PRODUCT NAMES: DVD Studio Pro 1.0 (055069)

TITLE: DVD Studio Pro 1.0
AUTHOR: Breen, Christopher
SOURCE: Macworld, p32(1) Sep 2001
ISSN: 0741-8647
HOMEPAGE: http://www.macworld.com

RECORD TYPE: Review
REVIEW TYPE: Review
GRADE: B

REVISION DATE: 20011130

...breaks through the price barrier with a cost thousands of dollars lower than hardware-based, **Mac** -compatible DVD-authoring products. It earns very good marks overall. DVD Studio Pro 1.0...

...practice. No support is provided for previews of DVDs on an external monitor, nor is **Mac** OS X support provided. Just as its entry-level cousin iDVD does, DVD Studio Pro...

...on a PowerMac G4 with an Apple-provided AGP graphics card. Video source material is **encoded** via the provided QuickTime **MPEG Encoder** codec. Audio files are converted to DVD- compatible Dolby Digital (AC-3) format with the...

14/3,K/2
DIALOG(R)File 256:TecInfoSource

00131306 DOCUMENT TYPE: Review

PRODUCT NAMES: DVD Studio Pro (055069)

TITLE: Speed Demon: Apple's DVD Studio Pro
AUTHOR: Payne, Matt
SOURCE: AV Video & Multimedia Producer, v23 n5 p129(3) May 2001
ISSN: 1090-7459

RECORD TYPE: Review
REVIEW TYPE: Review
GRADE: B

REVISION DATE: 20010930

...is very fast, the fact that DVD Studio Pro does not have a high-quality **MPEG** -2 **encoder** for the **Mac** keeps it from becoming a top-ranked DVD-encoding system.
?

```
? show files; ds; save temp; logoff hold
File  92:IHS Intl.Stds.& Specs. 1999/Nov
         (c) 1999 Information Handling Services

Set     Items   Description
S1          1   (ENCAPSULAT? OR EN()CAPSULAT? OR CAPSULAT? OR COVER? OR CA-
             S? OR EMBED? OR ENCLOS??? OR ENCAS? OR SEAL?)(7N)(MPEG OR MOV-
             ING()PICTURE? ?()DISPLAY()GROUP? ?)
S2          0   DOCSIS OR DATA()OVER()CABLE()SERVICE()INTERFAC? ?()SPECIFI-
             CATION? ?
S3        171   FORMAT?(3N)MESSAGE? ?
S4         25   (STRIP? OR REMOV? OR UNCOVER? OR  TAK?()OFF OR WITHDRAW)(7-
             N)CONTENT?
S5          0   S4(7N)PACKET? ?
S6        345   MAC OR (MEDIUM OR MEDIA)()ACESS()CONTROL
S7          0   ENCOD?(5N)(MPEG OR MOVING()PICTURE? ?()DISPLAY()GROUP? ?)
S8        677   DECOD?
S9         30   (DISPLAY? OR SHOW? OR VIEW?)(5N)(SIGNAL OR OUTPUT)
S10         0   AU=(CRAVEN, J? OR CRAVEN J ? OR BUGAJSKI, M? OR BUGAJSKI M-
             ?)
S11         0   S3(S)S4
S12         6   S6(S)S8
S13         6   RD (unique items)
S14         1   S8(S)S9
```

1/3,K/1
DIALOG(R)File 92:IHS Intl.Stds.& Specs.

00329340
Digital Video Broadcasting (DVB); Usage of the DVB Test and Measurement Signalling Channel (PID 0x001 D) Embedded in an MPEG -2 Transport Stream (TS) V1.1.1
DOCUMENT NUMBER: TR 101 291
ISSUING ORGANIZATION: ETSI - European Telecommunications Standards Institute
DOCUMENT TYPE: France;Europe (EC & EFTA Countries)
YEAR: 1998 00037 PAGES LANGUAGE: ENGLISH

... **Video Broadcasting (DVB); Usage of the DVB Test and Measurement Signalling Channel (PID 0x001 D) Embedded in an MPEG -2 Transport Stream (TS) V1.1.1**
?

13/3,K/1
DIALOG(R)File 92:IHS Intl.Stds.& Specs.

00416691
Preliminary Studies of Radio Interference Limits for MAC **/Packet** Decoders **- Section 1D - Spectrum Utilization and Applications**
DOCUMENT NUMBER: REPORT 1101
ISSUING ORGANIZATION: ITU-R - International Telecmmunication Union/ ITU Radiocommunication Sector
DOCUMENT TYPE: Switzerland, Swiss Confederation;Europe (EC & EFTA Countries);International
YEAR: 1990 00027 PAGES LANGUAGE: ENGLISH

Preliminary Studies of Radio Interference Limits for MAC **/Packet** Decoders **- Section 1D - Spectrum Utilization and Applications**
DESCRIPTORS: **Decoders : MAC** /Packet...

13/3,K/2
DIALOG(R)File 92:IHS Intl.Stds.& Specs.

00387630
Methods of Measurement on Receivers for Satellite Broadcast Transmissions in the 12 GHz Band Part 5: Electrical Measurements on Decoder **Units for** MAC **/Packet Systems First Edition**
DOCUMENT NUMBER: 61079-5
ISSUING ORGANIZATION: IEC - International Electrotechnical Commission
DOCUMENT TYPE: Switzerland, Swiss Confederation;Europe (EC & EFTA Countries);International
YEAR: 1993 00156 PAGES LANGUAGE: ENGLISH

... **Receivers for Satellite Broadcast Transmissions in the 12 GHz Band Part 5: Electrical Measurements on** Decoder **Units for** MAC **/Packet Systems First Edition**
DESCRIPTORS: **Decoders : MAC** /Packet...

...Electrical Measurement; Electrical Measurement: **Decoders** --...

... **MAC** /Packet

13/3,K/3
DIALOG(R)File 92:IHS Intl.Stds.& Specs.

00307612
M|lemetoder for modtagere til satellitudsendelser i 12 GHz omr|det. Del 5: Elektriske m|linger p| dekoderenheder til MAC/Packet systemer
DOCUMENT NUMBER: DS/EN 61079-5:1994
ISSUING ORGANIZATION: DS - Dansk Standard
DOCUMENT TYPE: Denmark
YEAR: 1994 LANGUAGE: ENGLISH

DESCRIPTORS: **Decoders : MAC** /Packet...

...Electrical Measurement; Electrical Measurement: **Decoders** --...

... **MAC** /Packet

13/3,K/4
DIALOG(R)File 92:IHS Intl.Stds.& Specs.

00284599
Messverfahren fuer Empfaenger fuer Satelliten-Rundfunkuebertragungen im 12-GHz-Bereich; Teil 5: Elektrische Messungen an Dekodern fuer MAC/Paket-Systeme (IEC 61079-5:1993); Deutsche Fassung EN 61079-5:1993
DOCUMENT NUMBER: DIN EN 61079-5
ISSUING ORGANIZATION: DIN - DIN Deutsches Institut Fur Normung E V
DOCUMENT TYPE: Federal Republic of Germany;Europe (EC & EFTA Countries)
YEAR: 1994 00051 PAGES LANGUAGE: GERMAN

DESCRIPTORS: **Decoders** : **MAC** /Packet...

...Electrical Measurement; Electrical Measurement: **Decoders** --...

... **MAC** /Packet

13/3,K/5
DIALOG(R)File 92:IHS Intl.Stds.& Specs.

00215698
Methods of Measurement on Receivers for Satellite Broadcast Transmissions in the 12 GHz Band Part 5: Electrical Measurements on Decoder **Units for** MAC **/Packet Systems (IEC 1079-5 : 1993)**
DOCUMENT NUMBER: EN 61079-5
ISSUING ORGANIZATION: CENELEC - European Committee For Electrotechnical Standardization
DOCUMENT TYPE: Belgium, Kingdom of;Europe (EC & EFTA Countries)
YEAR: 1993 00081 PAGES LANGUAGE: ENGLISH

... **Receivers for Satellite Broadcast Transmissions in the 12 GHz Band Part 5: Electrical Measurements** on Decoder **Units for** MAC **/Packet Systems (IEC 1079-5 : 1993)**
DESCRIPTORS: **Decoders** : **MAC** /Packet...

...Electrical Measurement; Electrical Measurement: **Decoders** --...

... **MAC** /Packet

13/3,K/6
DIALOG(R)File 92:IHS Intl.Stds.& Specs.

00189270
1995 Methods of Measurement on Receivers for Satellite Broadcast Transmissions in the 12 GHz Band Part 5: Electrical Measurements on Decoder **Units for** MAC **/Packet Systems (IEC 1079-5: 1993) (S)**

DOCUMENT NUMBER: BS EN 61079- 5
ISSUING ORGANIZATION: BSI - British Standards Institution
DOCUMENT TYPE: United Kingdom of Great Britain & Northern Ireland;Europe (EC & EFTA Countries)
YEAR: 1995 00081 PAGES LANGUAGE: ENGLISH

... **Receivers for Satellite Broadcast Transmissions in the 12 GHz Band Part 5: Electrical Measurements on** Decoder **Units for** MAC **/Packet Systems (IEC 1079-5: 1993) (S)**
DESCRIPTORS: **Decoders** : **MAC** /Packet...

...Electrical Measurement; Electrical Measurement: **Decoders** --...

... **MAC** /Packet
?

14/3,K/1
DIALOG(R)File 92:IHS Intl.Stds.& Specs.

00059799
CIRCUIT CARD ASSEMBLY: 11743281, DISPLAY DRIVER
DOCUMENT NUMBER: MIL-C-62204B
PREPARING ACTIVITY: AR - ARMY - U.S. ARMY ARMAMENT, RESEARCH, DEVELOPMENT, AND
DOCUMENT TYPE: Military Specification (1200)
YEAR: 1981 STATUS: ACTIVE 06-30-81 00027 PAGES
MICROFORM LOCATION: T410-4253 0112-12-0512 C-07 IHS ISSUE NO.: 9802

...INTENDED USE: Laser Fire Control Rangefinder (AN/VVG-2). The assembly provides the following major functions: a. **Signal decoding** , commutation and synchronization. b. **Display** drive.
?

Document Number:

IEEE 802.16mp-99/16

Title:

Media Access Control Protocol Based on DOCSIS 1.1

Date Submitted:

1999-11-08

Source:

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Purpose:

This presentation is intended to provide an overview of the submission IEEE 802.16mc-99/16, "Media Access Control Protocol Based on DOCSIS 1.1"

Notice:

Release:

IEEE Patent Policy:

IEEE 802.16mc-99/16

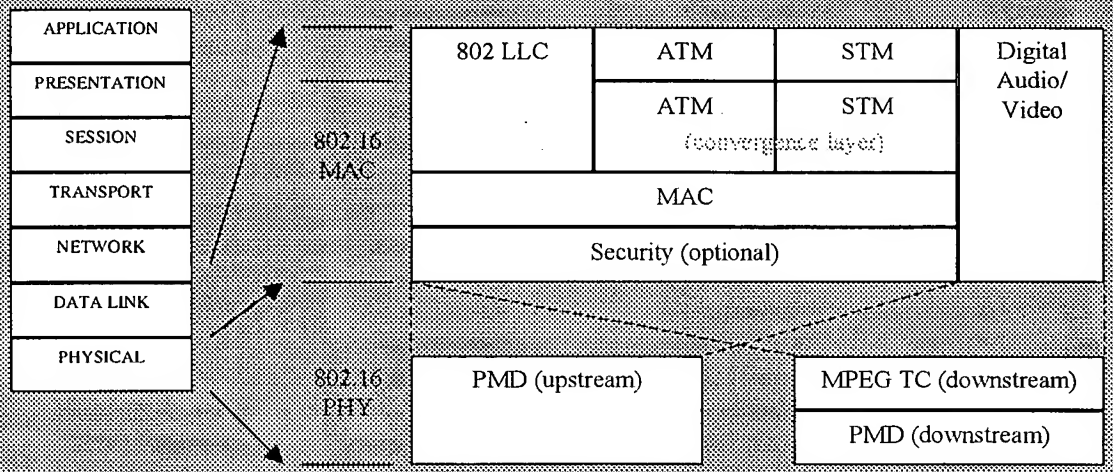
Glen Sater

Karl Stambaugh

Motorola Inc.

- Point to multi-point MAC protocol
  - Broadcast downstream
  - TDMA upstream (multiple upstreams possible)
- Scheduler separate from MAC
- Variable-length native MAC PDU
  - Mapped into mini-slots for upstream bursts
- Service Flows
  - Integral to bandwidth allocation process
  - Multiple service flows per SS
  - Provides upstream and downstream QoS management

Support for ethernet/802.3
Support for ATM/STM convergence
Optional Security Layer

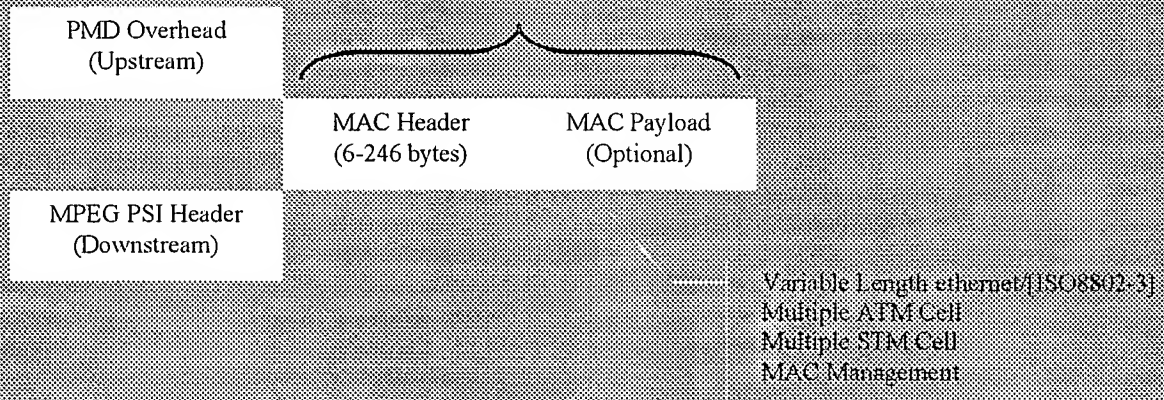


Variable-length native MAC PDU

Same format in both upstream & downstream

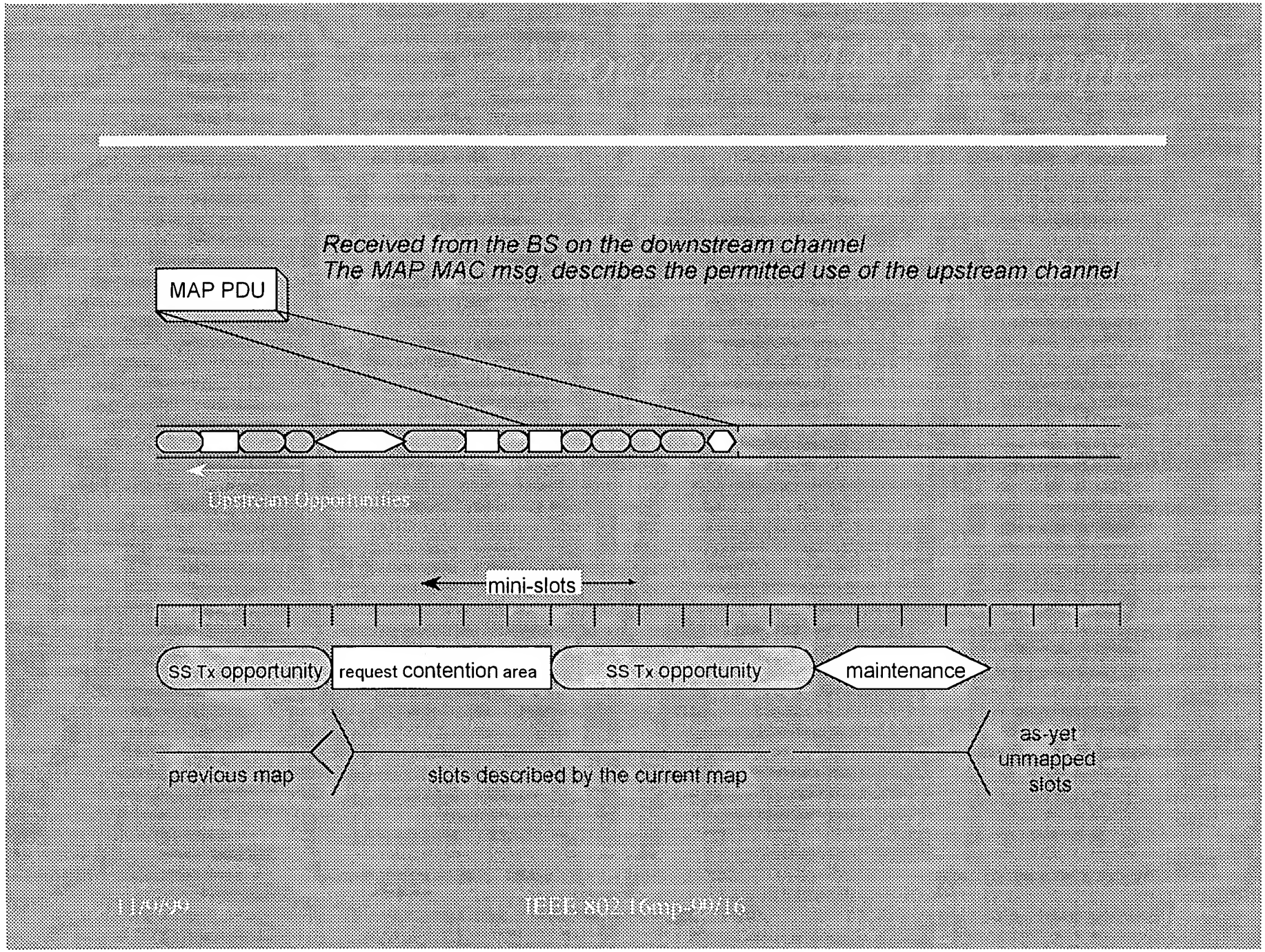
Downstream MAC frame starts anywhere

Payload Mac header = 6 bytes



- Timing based on mini-slots
  - Length independent of modulation symbol rate
    - Typical length: 8, 16, or 32 bytes
  - Timing relative to downstream SYNC MAC message
- MAP messages allocate mini-slots to SS
- Available access/transmission modes:
  - Contention (collision or polled)
  - Unsolicited (reservation-based or polled)
  - Transmission with contention
  - Maintenance (initial and ranging)
- Reservation request in upstream MAC burst

- Best Effort (BE)
  - tradition IP traffic
- Unsolicited Grant (UGS)
  - CBR traffic
- Unsolicited Grant with Activity Detection
  - switch between UGS and rtPS based on activity
  - VoIP with activity detection
- Real-Time Polling (rtPS)
  - periodic
- Non-Real-Time Polling (nrtPS)
  - non-periodic


Received from the BS on the downstream channel
The MAP MAC msg. describes the permitted use of the upstream channel
MAP PDU
Upstream Opportunities
mini-slots
SS Tx opportunity
request contention area
SS Tx opportunity
maintenance
previous map
slots described by the current map
as-yet unmapped slots

- Fragmentation
  - Defined in upstream; expanded to downstream
- Payload Header Suppression
  - Simple method for reducing bandwidth
  - Both directions
- Service Flows
  - Created, modified, and deleted dynamically
  - Assigned QoS characteristics

Ranging Parameters for Upstream Transmission

- RF Power
- Timing
- Frequency
- Equalizer coefficients (optional)

Ranging Types

- Initial
  - When SS enters the network
- Maintenance
  - Scheduled at regular intervals

- DOCSIS Baseline Privacy Plus Interface (BPI+)
  - Optional (implementation and use)
  - Optional by Service Flow
- Authentication
  - RSA Private/Public Key
  - Digital X.509 Certificates
- Privacy
  - DES Encryption using Cipher Block Chaining mode
  - User payload only

ERRONEOUS MPEG PACKET SYNCHRONIZATION IN THE MCNS/SCTE/ITU-T J.83 ANNEX B STANDARD

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Abstract -- This paper presents a phenomenon with repeating data packets sent according to the MCNS (Multimedia Cable Network System) DOCSIS (Data Over Cable Service Interface Specification)/SCTE (Society of Cable Telecommunication Engineers)/ITU-T J.83 Annex B standard. When repeating packets are received by a receiver, the receiver may erroneously lock onto the bit stream and produces incorrect MPEG packets. Repeating packets are usually not generated in practical systems. They are, however, easy to generate and preferred in a testing environment during product development. A system vendor may unknowingly encounter this phenomenon and incur delays in product designs in trying to solve this apparent error. This paper presents the mathematical background on the cause of this phenomenon.

I. INTRODUCTION

The ITU-T Recommendation J.83 Annex B (1995), Digital Multi-Programme Systems for Television Sound and Data Services[1] is a standard that is widely used in North America for transmission of a variety of digital information over coaxial cables, including the DOCSIS cable modem specification by MCNS[2].

The standard calls for a layered approach with the encoding and decoding of the data. This is depicted in Figure 1. At the outermost layer is the MPEG-2 framing layer that is used to substitute the MPEG-2 sync byte with an encoded parity checksum for every MPEG-2 packet.

The parity checksum is intended for packet synchronization and error detection. However, there are some deficiencies with this scheme. In particular, it is possible for a receiver to incorrectly synchronize itself when packets with identical information are sent. This does not necessarily mean that the standards are flawed. However, this raises some issues a receiver vendor must be aware of while testing systems for functionality, correctness, compatibility, and interoperability.

The following paper is intended to give a mathematical background on the cause of this potential false locking phenomenon. To understand the mathematics, one needs to know some finite field arithmetic that is the foundation of algebraic coding.

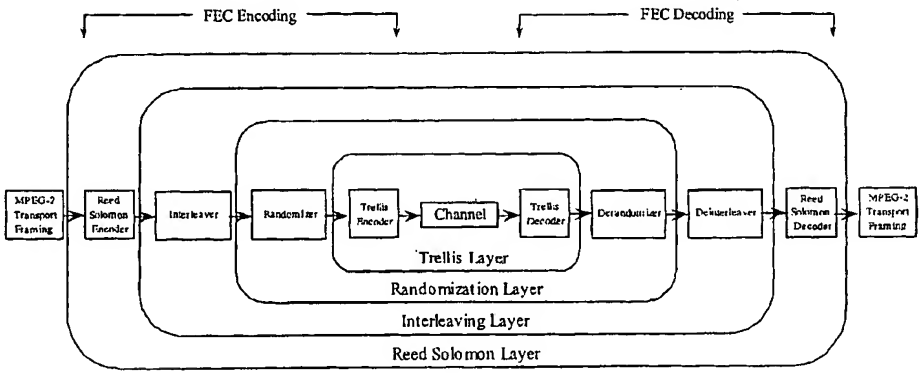


Figure 1 Layers of Processing for Encoding and Decoding of Packets

Manuscript received June 17, 1998

II. MPEG-2 CHECKSUM GENERATOR

The parity checksum is computed over the adjacent 187 bytes, which constitute the immediately preceding MPEG-2 packet contents (minus sync byte). The decoder computes a sliding checksum on the serial data stream, using the detection of a valid code word to detect the start of a packet. Once a locked alignment is established, the absence of a valid code word at the expected location will indicate a packet error. The error flag of the previous packet may be set as the data is passed out of the decoder. The normal sync byte must be re-inserted in place of the checksum to provide a standard MPEG-2 data stream as an output.

Figure 2 is duplicated from the SCTE specification. This figure describes how the checksum is computed from an MPEG-2 packet.

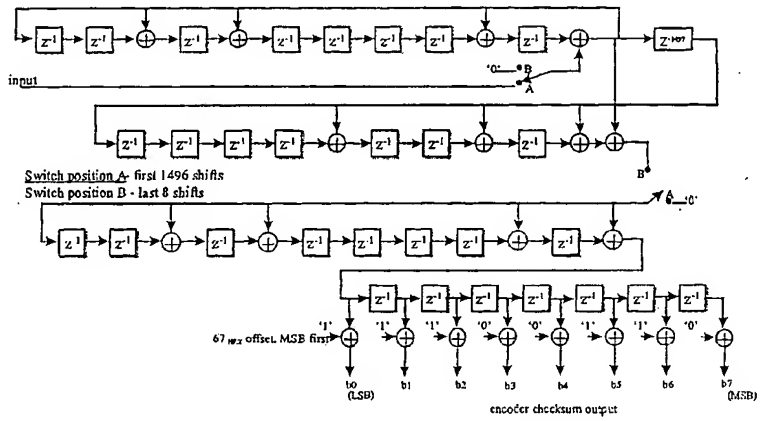


Figure 2 Checksum generator for the MPEG-2 sync byte encoder

For an encoding operation, the LFSRs (Linear Feedback Shift Registers) are first initialized so that all memory elements contain zero values. The 1496 bits which constitute the MPEG-2 transport stream packet payload are then shifted in. The encoder input is set to zero after the 1496 data bits are received, and eight additional shifts are required to sequentially output the eight computed syndrome bits. This 8-bit result is then passed through an additional FIR filter function g(x) (initialized to an all-zero state prior to the introduction of the 8 syndrome bits) to generate an encoder checksum. An offset of 67_{hex} is then added to the encoder checksum to produce the final parity checksum and transmitted. Note that addition for both the encoder and decoder are performed as modulo 2 additions.

III. MPEG-2 PACKET SYNCHRONIZATION AND CHECKSUM DECODING

The circuit structure that is used at the receiver to synchronize and recover MPEG-2 packets can be described with Figure 3. It is also duplicated from the SCTE specification.

The decoder computes a sliding syndrome on the serial data stream, using the detection of a valid code word to

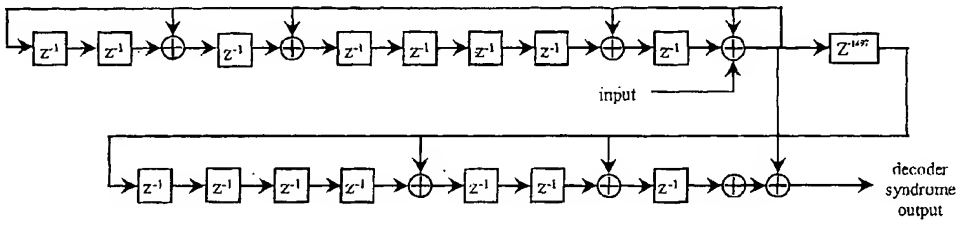


Figure 3 Syndrome generator circuit for the MPEG-2 sync decoder

detect the start of a packet. A valid code word is indicated when the calculated syndrome produces a 47_{hex} result. The syndrome is also calculated based on the previous 187 bytes and not the 187 bytes yet to be received by the decoder.

One can also observe that the decoder circuit is very similar to the top half of the encoder circuit with the exception that the input to the g(x) LFSR is the continuous bit stream and not multiplexed with zeros. In addition, the 1497 bit delay element is also not reset to all zeros at the beginning of a packet. This is needed for packet synchronization.

IV. Finite Field Algebra

In order to understand the encoder and the decoder, some understanding of finite field algebra and algebraic coding is necessary.

A finite field is defined as a set of elements that can be added and subtracted, multiplied and divided. The smallest possible finite field consists of only 2 elements, 0, and 1. This field is also called a Galois field with a notation of GF(2). The addition is defined to be modulo 2 addition and multiplication is defined to be a logical AND operation. This binary field lends itself very well to digital communications and circuits.

From a finite field of 2 elements, an extension field $GF(2^m)$ of GF(2) can be constructed. The extension field contains 2m elements and can be written as a polynomial of degree (m - 1) or less, where the coefficient of the polynomial is a GF(2) element, either a 0 or 1. This can usually be represented as an m-bit binary number, where the bit position represents the degree of the polynomial term. For example,

$g(x) = x^8 + x^6 + x^5 + x + 1$ can be represented as binary 1 0110 0011

To construct such an extension field, one needs to find a prime polynomial or irreducible polynomial of degree m. A prime polynomial is defined as a polynomial that can be divided only by 1 and itself. The division is performed with GF(2) division. The g(x) above is a prime polynomial of degree 8. It can be used to construct a GF(256). This g(x) polynomial will then be called the primitive element for this GF(256). Every field element will then be constructed modulo g(x). This definition can be found as Definition 4.5.5 in [4].

Further, it is stated without proof that g(x) divides $(x^{255} + 1)$ in GF(2) polynomial division. Note that addition and subtraction (or negation) are identical in GF(2). In general, any primitive polynomial p(x) of any GF(q) where q is a power of a prime number, divides $(x^{(q-1)} - 1)$. For this case, q is $256 = 2^8$, a power (8) of a prime number (2). This theorem can be proven with the theorems proven in Chapter 4 of [4].

V. Algebraic Coding

Many error correction/detection codes can be described algebraically; examples include Reed Solomon codes, Hamming codes, and CRC codes. The parity checksum coding in the SCTE specification[3] is no exception.

In general, such codes are produced by taking an information word (usually a block of data), represented by the polynomial i(x), and multiplying it with a generator, represented by the polynomial g(x), to create the transmitted code word, represented by the polynomial c(x). That is:

$$c(x) = i(x) \cdot g(x)$$

When the decoder receives the transmitted code word, it checks to see whether the code word is divisible by g(x). If so, then the original information word can be recovered by using the above equation. When there are errors during the transmission, the received code word will not be divisible by g(x), then depending on how many errors occurred during the transmission, the received code word may or may not be correctable to recover the original information word.

The amount or errors that can be corrected so that original information words can be recovered depends on the amount of parity information that is included in the transmitted code word. The parity information comes from the fact that the information word is multiplied by the generator. For the receiver to correct 1 symbol error, 2 symbols of parity are needed. (Note: a symbol is defined to be a unit of the code construction, or a coefficient in the information word polynomial; this could mean a bit for the case of the parity checksum code or a 7-bit symbol in the case of the Reed Solomon code described in the SCTE specification.) This is so that algebraic equations can be derived to solve for the location and the magnitude of the error within the information word. So, to correct t errors, 2t symbols of parity are needed. The weight of the code is also said to be 2t. This means that for any pairs of information words that differ by 1 symbol, the generated code words are guaranteed to differ by 2t (or more) symbols. It is also possible to detect errors with this encoding scheme. With 2t parity symbols, it is possible to detect up to 2t errors.

With the MPEG checksum generation scheme, there are 8 bits of checksum for every packet. This means a code could be generated so that up to 8 bits of error can be detected. However, with the particular encoding scheme of the MPEG checksum, the code can detect up to 5 bits of error. This also means that when there are more than 5 bits (2t symbols for the general case) of errors, it is possible for the decoder not to recognize the error. In fact, it is possible and sometimes likely for the decoder to consider the transmitted code word to be of no errors even when errors are present. For the MPEG synchronization/checksum decoder, it is possible then for the circuit to lock on to the bit stream erroneously and not realize it.

The above encoding scheme often generates non-systematic code, i.e., information code words that are not duplicated verbatim over the transmitted code word, due to the polynomial multiplication with the generator polynomial. To construct a systematic code word and satisfy the mathematical property ($c(x)$ is divisible by $g(x)$), the encoding equation can be modified to:

$c(x) = i(x)x^{n-k} + i(x)x^{n-k} \bmod g(x)$, where mod is the modulo operator.

In the equation, k represents the length of the information word and n represents the length of the transmitted code word. This guarantees that the original information is preserved as the high order coefficients of the transmitted code word polynomial. This also means that $i(x)x^{n-k}$ mod $g(x)$ is the parity information.

The choice of g(x) depends on codes, but this is usually chosen to be a combination of prime polynomials to maximize the separation between code words for improved error detection capability. For the case of the MPEG checksum encoder, g(x) is chosen to be $x^8 + x^6 + x^5 + x + 1$, a prime polynomial of degree 8.

VI. False Locking in the MPEG-2 Synchronization

As mentioned before, it is possible for the MPEG-2 synchronization in a receiver to incorrectly synchronize itself to the bit stream when certain conditions in the packets are met. I will show one possibility here with the mathematical background.

The checksum information generated by the encoder depends only on the first 8 bits of every packet and the result of the input bit stream passing through the g(x) LFSR. The g(x) LFSR implements the modulo g(x) function and the g(x) polynomial is a prime polynomial of degree 8 in GF(2). If the encoder has packets with the identical first 8 bits in every packet, then the checksum will only depend on the result of the input bit stream through the g(x) LFSR (or the modulo g(x) operation).

Most of the conditions for false locking to the bit stream have been met now. All it will take now would be that if the modulo g(x) operation creates identical output so that a valid syndrome word can be found at some shifted position of the bit stream. This is not difficult to achieve. In fact, if identical constant packets (a packet with all zeros, for example) are delivered into the encoder so that a repeated bit pattern is received at the decoder, it is possible for the decoder to lock onto the packets that are multiples of 255 bits away from the correct packet boundaries. Here is how:

(1) Due to the fact that the bit stream at the receiver is constant except at the checksum locations, if a false lock happens at location p, then the input to the b(x) shift register at the decoder will receive the same input if the bit stream is shifted by 255 bits.

(2) As it is shown from the previous section, the top g(x) LFSR really implements a modulo g(x) operation. That is, the output of g(x)

$$r(x) = i(x)x^{n-k} \bmod g(x) \tag{1}$$

then we can rewrite $i(x)x^{n-k}$ as

$$i(x)x^{n-k} = Q(x)g(x) + r(x) \tag{2}$$

where Q(x) is the quotient and r(x) is the remainder polynomials. Note that the degree of r(x) is less than the degree of g(x). Then,

$$c(x) = Q(x)g(x) \tag{3}$$

Suppose c(x) is shifted by 255 bits (equivalent to multiplying c(x) with x^{255}), then

$$c(x)x^{255} = Q'(x)g(x) \tag{4}$$

where

$$Q'(x) = Q(x)x^{255} \tag{5}$$

From (2) and (5), we have

$$i(x)x^{n-k}x^{255} = Q'(x)g(x) + r(x)x^{255} \tag{6}$$

or

$$i(x)x^{n-k}x^{255} = \left(Q'(x)+Q''(x)\right)g(x)+r'(x) \quad (7)$$

where

$$r(x)x^{255} = Q''(x)g(x)+r'(x) \quad (8)$$

So,

$$r'(x) = i(x)x^{255}x^{n-k} \bmod g(x) \quad (9)$$

Again, the degree of r'(x) is less than the degree of g(x)

Summing (2) and (7), we have

$$i(x)x^{n-k}(x^{255}+1) = (Q'(x)+Q''(x)+Q(x))g(x)+ (r'(x)+r(x)) \quad (9)$$

However, we know from before that g(x) divides x^{255} + 1, and both r'(x) and r(x) are polynomials of degree less than g(x), so (r'(x) + r(x)) is a polynomial of degree less than g(x). This can be written as:

$$i(x)g(x)p(x) = (Q'(x)+Q''(x)+Q(x))g(x)+ (r'(x)+r(x)) \quad (10)$$

for some p(x). Since (r'(x) + r(x)) is a polynomial of degree less than g(x), we conclude that r'(x) + r(x) = 0, or in GF(2) arithmetic:

$$r(x) = r'(x) \quad (11)$$

This means that if the code word is shifted by 255 bits, the parity information needed for detecting a valid code word is the same as the unshifted code word. One can further prove that if the code word is rotated by 255 bits (equivalent to multiplying the information word by x^{255} and taking the result modulo x^{255}), the parity information needed for detecting a valid code word is also the same.

Therefore, if the code word is shifted by 255 bits, the decoder will consider it to be a correct code word since the syndrome computed by the decoder will be the same as the original code word. This conclusion can also be extended to include code words that are shifted by a multiple of 255 bits from the original code word.

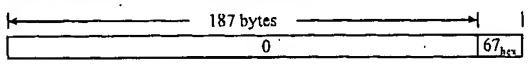
When the bit stream is identical from packet to packet, the decoder can lock onto a bit stream with packets that are multiples of 255 bits away from the correct packet boundaries since the syndrome computed will be a correct one. The MCNS DOCSIS specification calls for 5 consecutive valid syndrome code words for the lock to occur[3]. This can be easily met if the encoder is transmitting constant packets as well.

Another way to view this problem is that when the packet is rotated by 255 bits (or multiples of 255 bits), the code word essentially has a weight difference of 10 bits when compared to the original code word, which can be considered as an error of 10 bits. Since the MPEG checksum code can detect errors of up to 5 bits. Therefore, there is no way for the decoder to detect when an error of 10 bits occurs in the transmission.

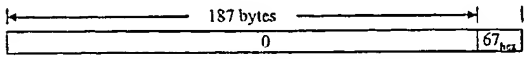
VII. Practical Examples

The following example will demonstrate that when all MPEG-2 packets contain zeros, a simple pattern that may be preferred during testing, there are 6 possible locations a decoder can lock to. In all 6 possible locations, a valid syndrome word is produced causing the decoder to believe that it has properly synchronized and decoded the bit stream.

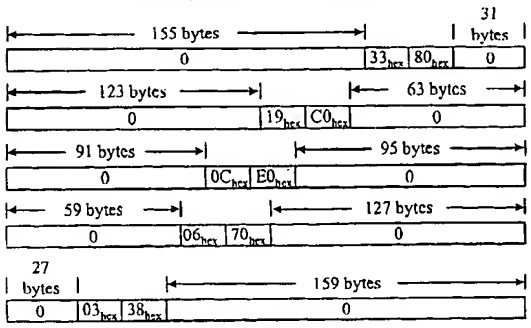
The encoded packet will look like:



The following figures show the 6 possible lock locations, only the first one is the correct one. Please note that the checksum bytes in the figure have not been removed from the packets so that every packet has 188 bytes. A decoder would substitute the checksum byte location with the normal MPEG-2 sync byte once the lock is established, however.



Correct packet locking alignment



Incorrect packet locking alignments

During acquisition, the decoder looks for any syndrome computation that yields a valid syndrome word of 47_{hex}.

In all of the 6 scenarios above, the decoder will compute a valid syndrome word of 47_{hex} after going through the first 187 bytes. Therefore, the decoder will determine that it has found a potential packet with the proper alignment. When this valid syndrome word is found at the same location for 5 consecutive packets, the decoder will declare that it has locked onto the proper MPEG packet alignment. With constant and repeating packets from the encoder, the decoder CAN and WILL lock onto the bit stream with any one of the above 6 scenarios. Of course, only the first scenario produces correctly aligned MPEG packets with respect to the encoder. All of the other 5 scenarios produce incorrectly aligned MPEG packets with respect to the encoder.

In all of the 5 incorrect scenarios, the computed checksum from the encoder (67_{hex}) is located within the MPEG packet data as various shifted bytes (3380_{hex}, $19C0_{hex}$, $0CE0_{hex}$, 0670_{hex}, or 0338_{hex}). These 5 scenarios represent bit stream shifted by multiples of 255 bits (255, 510, 765, 1020, and 1275).

VIII. Conclusion

This paper presented a possible scenario where the MPEG-2 synchronization and checksum decoder can falsely lock onto the bit stream and not detect any errors when constant packets are being generated by the encoder. Therefore, it is impossible to test any decoder correctly when constant packets are generated by the encoder.

It is also worthy to note that the synchronization and checksum decoder can also falsely lock onto the bit stream as long as the encoder is sending repeating packets. The frequency and likelihood of such events depend on the data pattern. The only way of avoiding such false lock conditions is for the encoder to send packets with non-repeating information (for example, pseudo-random sequences) within a packet.

Acknowledgment

The author wishes to acknowledge John Henderson, Josh Koslov, Frank Lane, Carl Scarpa, and Sanjay Vinekar at Digital Media Systems Laboratory of Hitachi America, Ltd. for their support.

References

[1] ITU-T Recommendation J.83 Annex B (1995), Digital Multi-Programme Systems for Television Sound and Data Services for Cable Distribution.

[2] MCNS Data Over Cable Service Interface Specification - Radio Frequency Interface Specification. SP-RFII01-970326, March 26, 1997

[3] SCTE DVS/031 (1997), Digital Video Transmission Standard for Cable Television.

[4] Blahut, Richard E., *Theory and Practice of Error Control Codes*, Addison-Wesley Publishing Company, Massachusetts, 1984.

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Adaptive Scheduling in DOCSIS-based CATV Networks

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Abstract This paper studies the effect of the DOCSIS MAC layer on the performance of two-way TCP transfers in Hybrid Fiber Coax (HFC) networks. We propose a new adaptive scheduling scheme called Long Packet Deferment (LPD) at the headend to improve TCP performance in DOCSIS-based HFC networks. LPD reduces the frequency of transmission of long packets and, if such long packets are transmitted, they are scheduled towards the end of each transmission period. Thus, it allows the system to behave as in a symmetric network earlier, reduces the round trip delay of sending data packets, and improves the aggregate downstream throughput. We have conducted simulations using network simulator *ns-2* to compare the simple first-come-first-served scheduling of DOCSIS and IEEE 802.14 like mechanism with LPD. The results show that LPD has better performance in terms of higher aggregate downstream throughput and shorter access delay.

Keywords: TCP, HFC, DOCSIS, asymmetric network

1. Introduction

A Hybrid Fiber Coax (HFC) network is a promising technology to provide broadband access to the Internet. It is a tree-and-branch, point-to-multi-point access network in the downstream direction but a multipoint-to-point, bus access network in the upstream direction. The Multimedia Cable Network System Partners (MCNS) [1] and the IEEE 802.14 Working Group [2] are developing standards to enable data communication capabilities over HFC networks.

MCNS's Data-Over-Cable Service Interface Specifications (DOCSIS) specifies the physical layer modulation and the MAC layer operation for HFC networks. In DOCSIS, the upstream channel is modeled as a stream of mini-slots, is based on a contention-based reservation control mechanism to arbitrate random access to the channel, and is controlled by the Cable Modem Termination System (CMTS) at the headend. Each Cable Modem (CM) sends requests to the CMTS for the use of the upstream channel, and waits for data grants (i.e., slots) allocated by the CMTS. The CMTS regularly transmits downstream management messages called Upstream Bandwidth Allocation (denoted as MAP), which defines transmission intervals on the upstream channel. Each transmission interval specified by a MAP contains request mini-slots and data mini-slots. Request mini-slots are used by CMs to request upstream bandwidth; data mini-slots are used by CMs to transmit data frames. All CMs learn the assignment of bandwidth from the MAP. Thus, each MAP must be received by all the CMs before the beginning of the described transmission period (i.e., its effective time).

Previous studies [1-4] have shown that TCP performance degrades when operating in HFC networks due to the bandwidth asymmetry of downstream and upstream channels. [5] investigates how DOCSIS MAC layer affects bandwidth asymmetry. This paper proposes a new protocol called "Long Packet Deferment" at the headend to solve the TCP performance problem caused by DOCSIS MAC layer scheduling and allocation mechanisms. In particular, we focus on two-way TCP transfers, i.e., both data and ACK packets are transmitted on the upstream channel.

The rest of the paper is organized as follows. Section 2 analyzes the behavior of two-way TCP transfers over DOCSIS's MAC layer. Section 3 presents the proposed mechanism called "Long Packet Deferment (LPD)" to improve TCP performance in DOCSIS-based HFC networks. Section 4 shows the simulation results using ns2 to compare the original DOCSIS MAC layer control mechanism with our mechanism. Finally, we conclude in Section 5.

2. TCP Performance over the DOCSIS MAC Layer

2.1 The Effect of Bandwidth Asymmetry on TCP Performance

Asymmetric networks, such as HFC and xDSL, are defined as networks with different channel capacities in the downstream and upstream directions. The main effect of bandwidth asymmetry on TCP performance is that TCP ACK clocking may be disrupted. [1] defines a bandwidth asymmetric ratio, k, to better understand the behavior of TCP in asymmetric networks:

$$k = \frac{\text{forward channel bandwidth}}{\text{reverse channel bandwidth}} \times \frac{\text{ACK packet length}}{\text{data packet length}} = \frac{C_d}{C_u} \times \frac{L_{ack}}{L_{data}} \quad (1)$$

TCP behaves normally when k is less than or equal to one. When bandwidth is asymmetric (i.e., $k > 1$), ACK packets arrive at the bottleneck link in the reverse direction at a rate faster than the bottleneck link can support. As a result, the sender clocks out data at a slower rate and slows down the growth of the congestion window, which in turn lowers the throughput in the

downstream direction.

2.2 The Effect of DOCSIS MAC Layer on Bandwidth Asymmetry

[5] showed that eq (1) alone cannot adequately explain TCP's behavior in DOCSIS-based HFC networks. Considering the MAC layer operation of DOCSIS v1.1, k is modified as

$$k = \alpha \times \frac{C_d \times T_{usv}}{d \times L_{data} \times N_{dCM}} \qquad (2)$$

$$\text{where } \alpha = \begin{cases} 1 & \text{, for one - way transfers} \\ \dfrac{N_{dCM} L_{data}}{N_{dCM} L_{data} + \dfrac{N_{uCM} L_{ack}}{d}} & \text{, for two - way transfers} \end{cases}$$

where d is a parameter of the delayed ACK policy (i.e., sending one ACK packet to acknowledge the receipt of d data packets), T_{usv} is defined as the average time between sending two consecutive packets in the CM buffer, N_{dCM} is the number of simultaneous TCP downloading, and N_{uCM} is the number of simultaneous TCP uploading.

In DOCSIS, the upstream channel is modeled as a stream of mini-slots. A transmission starts only at the beginning of any mini-slot. Let N_{u_ack} be the number of mini-slots used to transmit one ACK packet on the upstream. Given L_{ack}, C_u, and t_{ms}, we can derive the number of mini-slots used to transmit an ACK packet as

$$N_{u\_ack} = \left\lceil \frac{L_{ack}}{C_u} \times \frac{1}{t_{ms}} \right\rceil \qquad (3)$$

where L_{ack} is the size of an ACK packet, t_{ms} is time period defined as one mini-slot on the upstream channel, and C_u is the upstream channel capacity. Similarly, we can derive the number of mini-slots used to transmit a data packet as $N_{u\_data} = \left\lceil \frac{L_{data}}{C_u} \times \frac{1}{t_{ms}} \right\rceil$, where L_{data} is the size of a data packet.

A MAP describes the bandwidth allocation in a transmission period. It should be received by all the participating CMs before its effective time. Each MAP may be transmitted before some requests, especially piggybacked ones, have arrived and been processed at the CMTS. The late requests are deemed pending in the current transmission period, and become backlogged requests in the next period. These pending requests plus new requests which arrive at the CMTS during the next transmission period will be waiting to be granted in the next MAP. Let D_{MAP} be the time difference between when a MAP is transmitted and when it goes into effect. Since the size of the ACK packet is fixed, the maximum number of pending requests, N_{p_REQ}, (i.e., those arrive at the CMTS during a D_{MAP}) can be expressed as

$$N_{p\_REQ} = \left\lfloor \frac{D_{MAP}}{t_{ms}} \times \frac{1}{N_{u\_ack}} \right\rfloor \qquad (4)$$

Let N_c be the number of mini-slots allocated to the request contention period. Thus, for an ACK packet,

(1) when $N_{dCM} \leqq 2N_{p\_REQ}$, T_{usv} is bounded by

$$\begin{aligned} &(N_c + N_{uCM} N_{u\_data} + N_{dCM} N_{u\_ack})\, t_{ms} \\ &\quad \leq \; T_{usv} \; \leq \\ &(2N_c + 2N_{uCM} N_{u\_data} + N_{dCM} N_{u\_ack}) \times t_{ms} \end{aligned} \qquad (5)$$

(2) when $N_{dCM} > 2N_{p\_REQ}$, T_{usv} is bounded by

$$\begin{aligned} &(N_c + N_{uCM} N_{u\_data} + N_{dCM} N_{u\_ack})\, t_{ms} \\ &\quad \leq \; T_{usv} \; \leq \\ &\frac{[N_c + N_{uCM} N_{u\_data} + (N_{dCM} - N_{p\_REQ}) N_{u\_ack}]\, t_{ms} N_{dCM}}{(N_{dCM} - N_{p\_REQ})} \end{aligned} \qquad (6)$$

Substituting eqs. (5) and (6) into (2), we can derive the two bounds of k for the two cases accordingly.

3. Long Packet Deferment

In DOCSIS, the CMTS allocates at most one data grant to each client in a MAP, irrespective of the number of mini-slots requested. The design philosophy behind "one-CM-one-Data-IE" in a MAP is to fairly share the channel bandwidth, i.e. no one will monopolize all of the bandwidth in a transmission period. Such fairness, however, holds only for one-way TCP transfers. With two-way TCP transfers, both data and ACK packets are transmitted upstream. Typically, TCP packets are ten times larger than ACK packets. Thus, both types of packets require different sizes of data grants to be allocated by the CMTS. [5] showed that with two way transfers, the upstream TCP traffic (i.e., long data packets) might throttle the downstream traffic (i.e., short ACK packets). The reasons are as follows.

(1) Long data packets going upstream cause high asymmetric ratio, and thus long round trip time, to short ACK packets. Long round trip delay in turn reduces the growth rate of the downloading CM's congestion window because the congestion window of TCP grows at a rate inversely proportional to average round trip delay.

(2) The "one-CM-one-Data-IE" allocation of DOCSIS leads to both upstream and downstream transfers experiencing the same round trip delay. Thus, the congestion windows of these two types of transfers grow at approximately the same rate. This results in low bandwidth utilization on the downstream channel because the downstream channel typically has far higher capacity than the upstream one. Should these two types of TCP transfers grow their congestion windows at the same rates, it would underutilize the bandwidth on the downstream channel.

To summarize, DOCSIS treats TCP data packets the same way as ACK packets on the upstream channel. It

allows each CM to send at most one data grant in every MAP, irrespective of its frame size. This causes the same round trip delays for both downstream and upstream transfers, and results in poor bandwidth utilization on the downstream channel. To solve this problem, we propose a mechanism called "Long Packet Deferment" (LPD), which treats long packets (data packets) differently from short packets (ACK packets) on the upstream channel. The design goal of the LPD protocol is to reduce the sending rates of long packets and increase those of short packets, in an attempt to achieve true fairness in resource sharing. Thus, we can shorten the round trip delay of downstream TCP transfers without seriously degrading the performance of upstream TCP transfers. Note that the LPD mechanism is designed to operate at the CMTS only. No modification is required on CMs.

3.1 LPD Fundamentals

We assume all data packets are of fixed size, and distinguish between two types of requests only (i.e., for long and short data grants). Later we will extend to packets with variable size in Sec. 3.3. Let δ be the threshold to determine the type of a request, where $\delta = \frac{N_{u\_data} - N_{u\_ack}}{2}$. Intuitively, if the data grant size requested exceeds the threshold δ, the request should be deferred a few more steps before the allocation is granted. Let N_{def} be the number of steps a long packet should be deferred. Each downloading CM (i.e., those transferring short ACK packets) can get a data grant in every MAP, but each uploading CM (those transferring long data packets) can only get one data grant in every N_{def} MAPs.

Suppose that the CMTS have two types of queues to store requests: a long job queue and a short job queue. Upon receipt of a new request, the CMTS processes the request as follows. If the data grant size requested is larger than δ, the CMTS initializes the request's deferred step to N_{def} and puts it into the long job queue; otherwise, the number of deferred steps is set to one and the request is put into the short job queue. Later when it comes to the transmission time of the next MAP, the CMTS will start processing requests from the short job queue, followed by the long job queue, all on a first-come-first-served basis. The CMTS allocates data grants only to those requests with the number of deferred steps less than or equal to one, and removes the allocated requests from the respective queues. For those with larger-than-one deferred steps, the CMTS decrements the values of their deferred steps, issues them data pending IEs in the MAP, and puts them back into the queues. This process continues until the limitation of a MAP is reached (2048 mini-slots and 240 IEs), when the CMTS will stop both allocating data grants and decrementing the deferred steps. It will then start issuing the remaining eligible requests (i.e., those with deferred steps of less than or equal to one) data pending IEs on the MAP because the CMs should be notified that their requests are pending, not lost.

3.2 Analysis of the LPD Mechanism

The LPD mechanism makes downloading CMs experience different round trip delays from uploading CMs, with the ratio of the upstream packet sending rates of these two types of CMs being N_{def}:1. In addition, LPD forces the CMTS to place long data grants at the end of each MAP because it starts allocation from the short job queue. Thus, the LPD mechanism keeps the asymmetric ratio and TCP round trip delay at the lower bound if there is any long data grant allocated in a MAP.

(a) Asymmetric ratio

The LPD mechanism causes different round trip delays to downstream and upstream TCP transfers. We first derive the upstream data service times for both downloading and uploading CMs.

(1) For downloading CMs (i.e., ACK packet),

$$T_{usv} = (N_c + \frac{N_{uCM}}{N_{def}} \times N_{u\_data} + N_{dCM} N_{u\_ack})\, t_{ms} \quad (7)$$

Since the number of mini-slots for a long data grant (for TCP packet) is much larger than the number of mini-slots for a short data grant (for ACK packet), $N_{u\_data} >> N_{u\_ack}$ and $N_{def} >> 1$. Comparing eqs. (7) with (5) and (6), we see that the upstream data service time of the downloading CM is significantly reduced.

(2) For uploading CMs (i.e., data packet),

$$T_{usv} = (N_{def} N_c + N_{uCM} N_{u\_data} + N_{def} N_{dCM} N_{u\_ack})\, t_{ms} \quad (8)$$

Comparing eqs. (8) with (5) and (6), we see that the LPD mechanism may slightly increase the upstream data service time of the uploading CM.

The asymmetric ratio k of downstream TCP transfers for LPD can be derived as

$$k = \frac{N_{def} N_{dCM} L_{data}}{N_{def} N_{dCM} L_{data} + \frac{N_{uCM} L_{data}}{d}} \times \frac{C_d}{d \times L_{data}} \times \frac{[N_c + \frac{N_{uCM}}{N_{def}} \times N_{u\_data} + N_{dCM} N_{u\_ack}]\, t_{ms}}{N_{dCM}} \quad (9)$$

Compared with the original scheduling (i.e., simple FCFS), k in eq. (9) is smaller due to smaller upstream data service time. A smaller k will speed up the dropping of the value of k to one, when the system will behave normally, i.e., as in the symmetric network. This in turn shortens the round trip delay, which results in larger downstream throughout.

(b) Round trip delay

With two-way transfers, the system is mostly operated as in asymmetric networks. Eq. (10) shows the average round trip delay of sending a packet as k>1.

$$RTT = 2T + T_{trans} + B_{CM} \times T_{usv} \quad (10)$$

where B_{CM} is the buffer size of the CM, and

$$T_{trans} = \begin{cases} \frac{L_{data}}{C_d} + \frac{L_{ack}}{C_u}, \text{for downstream traffic} \\ \frac{L_{data}}{C_u} + \frac{L_{ack}}{C_d}, \text{for upstream traffic} \end{cases}$$

Substituting eqs. (7) and (8) into (10), we can derive the average round trip delays of downstream TCP transfers and upstream TCP transfers accordingly.

The last term of eq. (10) dominates RTT. Thus, LPD has far shorter round trip delay for the downstream TCP transfer compared to the original scheduling (i.e., simple FCFS) but slightly longer round trip delay for the upstream TCP transfer.

3.3 The Number of Deferred Steps

In this section, we determine the number of steps a packet should be deferred and generalize LPD to handle data packets with variable size. Let L_x be the data grant size of a new request R_x. There are two considerations to determining D_x, the number of steps request R_x should be deferred before being granted.

(1) Balance the data rate.

If we let $D_x = \left\lfloor \frac{L_x}{N_{u\_ack}} \right\rfloor$, the downloading and uploading TCP transfers will have the same transmission rate on the upstream channel. $\left\lfloor \frac{L_x}{N_{u\_ack}} \right\rfloor$ should be the upper bound of D_x, because if D_x is set to a larger value, the mechanism will penalize long packets. Actually, if we let $D_x = \left\lfloor \frac{L_x}{N_{u\_ack}} \right\rfloor$, the system behaves like an IEEE 802.14 mechanism, which has fixed PDUs. Thus, D_x should be set to a value smaller than this bound because DOCSIS is benefited from supporting variable length PDUs [6].

(2) Balance the round trip delay.

We try to let the downstream and upstream TCP transfers fill up the downstream and upstream channels at the same rate. Since the TCP congestion window grows at a rate inversely proportional to its round trip delay, $\frac{\frac{1}{RTT_d} N_{dCM}}{\frac{1}{RTT_u} N_{uCM}} = \frac{C_d}{C_u}$ (13)

In addition, the last term in eq. (10) dominates RTT. Thus, we have $D_x = N_{def} = \frac{N_{uCM}}{N_{dCM}} \frac{C_d}{C_u}$ (14)

Typically, N_{uCM} is smaller than N_{dCM}. Both values are usually very hard to determine dynamically.

From the discussion above, D_x should be upper bounded by $\left\lfloor r \frac{L_x}{N_{u\_ack}} \right\rfloor$ and $\left\lfloor r \frac{C_d}{C_u} \right\rfloor$, where $0 < r < 1$. In the LPD protocol, we set the number of deferment groups $n = \left\lfloor r \frac{C_d}{C_u} \right\rfloor$, where $0 < r < 1$ [1]. Each group corresponds to a certain range of data grant size. D_x of request R_x is determined as follows.

(1) If $0 < L_x < \frac{2}{r} N_{u\_ack}$, $D_x = 1$ and R_x is put to the queue of group one.

(2) If $\frac{k}{r} N_{u\_ack} \le L_x < \frac{k+1}{r} N_{u\_ack}$, $k = 2,3\cdots, \left\lfloor r \frac{C_d}{C_u} \right\rfloor - 1$, $D_x = k$ and R_x is put to the queue of group k.

(3) If $L_x \ge \left\lfloor \frac{C_d}{C_u} \right\rfloor N_{u\_ack}$, $D_x = \left\lfloor r \frac{C_d}{C_u} \right\rfloor$ and R_x is put to the queue of group n.

Usually, $\left\lfloor r \frac{C_d}{C_u} \right\rfloor$ is not very large. Thus, this mechanism will be very efficient.

The LPD protocol is generalized as follows. The CMTS maintains n deferment queues to delay requests asking for different data grant sizes. Each time a request arrives at the CMTS, it is processed as follows. According to the data grant size requested, the CMTS assigns a number of deferred steps to the request and put it to the corresponding queue. When it comes to the next MAP, the CMTS allocates the data grants if the event has been deferred enough steps, in the order from the shortest job queue to the longest job queue until the MAP limitation is reached. This gives shorter packets higher priorities to send, and adjusts the data rates of downloading and uploading CMs accordingly.

4. Simulation

This section presents the simulation results using ns2 for the LPD mechanism, the 802.14-like mechanism (denoted as L2S in the figures), and the original DOCSIS control mechanism.

4.1 Simulation Environment

The simulation parameter setting is shown in Table 1. We

[1] From the simulation, r=0.5 can achieve the best balance in throughputs of both upstream and downstream transfers.

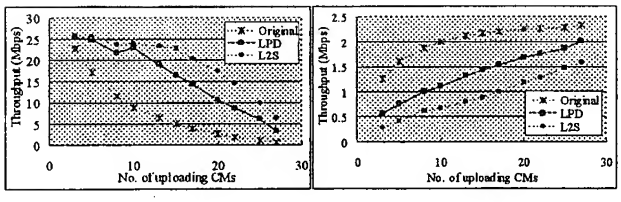
use two-way TCP bulk transfers as traffic sources and each CM can have only one TCP transfer at a time.

Parameter	Value
C_d	26.97 Mbps
C_u	2.56 Mbps
T	0.5 ms
D_{MAP}	2 ms
t_{ms}	50 us
N_c	50 (mini-slots)
MAP limit	2048 mini-slots and 240 IEs
L_{data}	1024 bytes
L_{ack}	64 bytes
B_{CM}	20 (packets)

Table 1 Parameter Setting

4.2 Simulation Results

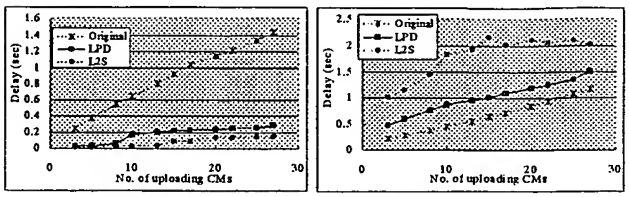
Fig. 1 shows the aggregate throughputs of downstream (Fig. 1 (a)) and upstream transfers (Fig. 1 (b)), varying uploading CMs from 1 to 30. The dotted lines are for the original DOCSIS; the solid lines with squares and circles are for LPD and L2S, respectively. Fig. 1 (a) shows that both LPD and L2S have about 80% improvement of aggregate downstream bandwidth over the original DOCSIS when less than one-third of CMs are doing upstream transferring. They have slight performance degradation on the upstream direction as shown in Fig. 1 (b) (note that Figs. 1 (a) and (b) have different scales in throughput). LPD has better improvement than L2S. Thus, the number of deferment groups does not need to be very large. Overall, LPD has the best balance between downstream and upstream bandwidth utilization when the proportion of uploading CMs is between 1/3 and 5/6. Since typically CMs perform downloads in HFC networks, it is rare that more than 5/6 of CMs are uploading. The region of interest is when the proportion of uploading CMs is less than 5/6, when performance improvement is observed.



(a) Downstream (b) Upstream

Figure 1. Aggregate throughput

Fig. 2 shows the access delays of downloading CMs (Fig. 2 (a)) and uploading CMs (Fig. 2 (b)), for the three mechanisms as a function of simultaneous uploading CMs. It shows that of the three mechanisms, simple FCFS (i.e., the original DOCSIS) has the largest access delay for downloading CMs, and the 802.14-like mechanism (i.e., L2S) has the largest access delay for uploading CMs. The LPD mechanism renders the access delays of downloading CMs much shorter, without significantly increasing the access delays of uploading CMs.



(a) Downstream (b) Upstream

Figure 2. Access delay

5. Conclusion

This paper proposes a new mechanism called "Long Packet Deferment" to significantly improve the performance of TCP over the DOCSIS MAC control mechanism. The LPD mechanism is aimed at reducing the negative impact of the DOCSIS MAC layer operation on bandwidth asymmetry, which improves the performance of TCP. With LPD, only the modification to the CMTS is required. We have also conducted simulations using network simulator *ns-2* to compare the original control mechanism of DOCSIS with our mechanism. The results show that the proposed LPD mechanism has better performance in terms of both aggregate downstream throughput and access delay.

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